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ABSTRACT

This study attempted to determine whether significant differences exist between the rated performance of student teachers working in teams and those working singly. Male and female trainees were also compared in these categories and the traditional or experimental teacher education programs in which they were enrolled. Forty-eight students preparing for secondary school teaching were randomly selected and further randomized into four groups containing equal numbers of men and women. Groups were assigned to one of the following programs: 1) traditional preparation, no student teaching; 2) traditional preparation, solo student teaching; 3) individualized preparation, solo student teaching; 4) individualized preparation, team teaching. The data were gathered in three categories: 1) performance in nine areas, recorded in videotaped lessons; 2) classroom interaction; and 3) self and cooperating teacher ratings on questionnaires. The data were subjected to analysis of variance and the mean scores adjusted for differences so that the pretest could be employed as a convariate in analyzing posttest data. Results indicated that team trainees from experimental programs were significantly more successful than traditional solo trainees in several areas. In the comparison of sex attitudes, men perceived their growth as being significantly greater than did their cooperating teachers. (MBM)

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A COMPARISON OF STUDENT TEACHING PERFORMANCE OF STUDENTS WHO HAVE TAUGHT AS TEAMS AND STUDENTS WHO HAVE TAUGHT SINGLY

by

Wallace Earl Allred

A dissertation submitted to the faculty of the
University of Utah in partial fulfillment of the requirement
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ABSTRACT

The problem for this study was to determine whether significant differences existed between the rated performance of student teachers who practice taught as teams and those who taught singly. The sex factor was also an element of the study, comparing male and female trainees in the above categories, along with the type of teaching preparation program in which they were engaged, (i.e. traditional or experimental).

Forty-eight social studies majors preparing for secondary school certification were randomly selected from all such potential student teachers at the Brigham Young University during fall semester, 1969-70. These students were further randomized into four groups containing equal numbers of males and females.

The four groups were randomly assigned to a training program and a student teaching assignment as follows:

1. Group I, traditional preparation no student teaching;
2. Group II, traditional preparation, solo student teaching;
3. Group III, Individualized Secondary Teacher Education Program (I-STEP experiment), solo student teaching;
4. Group IV, I-STEP preparation, team (three member) student teaching.

The subjects were compared on data gathered in three categories:

1. Performance in nine areas on pre and post student teaching video-taped fifteen minute lessons;

2. Classroom interaction (using Verbal Interaction Category System--VICS) determined from the video-taped lessons;
3. Self and cooperating teacher ratings on questionnaires (sixty items) relating to perceived growth in teaching knowledge, skills, and attitudes.

The video-taped episodes, recorded in the public school classrooms, were randomized and evaluated by three independent judges in terms of effective organization and presentation as well as for interaction patterns evident during the sessions.

Data from the pre student teaching lessons were subjected to an analysis of variance and the mean scores adjusted for differences so that the pretest could be employed as a covariate in analyzing post test data.

The analysis of covariance indicated that the I-STEP team trainees were significantly different (regarded more favorably) than the traditional solo groups in the following areas:

1. Opportunity for pupils to apply the concept of the lesson
2. Reinforcement of acceptable pupil behavior
3. Maintaining composure during unexpected class situations
4. Including appropriate concept classification activities
5. Involving pupils in the learning process
6. Less teacher initiated and prolonged talk
7. Less silence and confusion

Although significance in the same direction (I-STEP team mean scores being higher) was approached in several other categories, the critical values required for significance were not reached.

Trainees who completed the traditional course sequence with a solo practicum (Group II) demonstrated greater ability in only one category tested. Their students demonstrated more pupil-pupil interaction during the lessons than did pupils of any other group.

The most significant sex difference occurred in the comparative ratings trainees recorded for themselves and those of their respective cooperating teachers. In these ratings, males perceived their growth as being significantly greater than did their cooperating teachers. Female self ratings, however, were significantly lower than those of their cooperating teachers. These differences were irrespective of the type of preparation program (traditional or I-STEP)or student teaching assignment (team or solo).

Another significant sex difference suggested that male trainees responded more overtly to both acceptable and unacceptable pupil behavior than did females.

Based on these findings, it is recommended that:

1. Team student teaching experiments be expanded to other academic areas.
2. Additional studies are needed which compare team and solo student teaching, as well as male and female performances, in categories other than those included in this study.
3. Trainees with team student teaching experience be followed into the profession and be evaluated periodically for possible differences in effectiveness when contrasted with others in the field.

CHAPTER I

PROBLEM STATEMENT AND ITS COMPONENTS

In light of the continuing population growth and the unprecedented "knowledge explosion,"[1] coupled with the uncertainty of the ever-changing tomorrow which faces today's students, the demand, not only for an adequate number of teachers, but for more effective and efficient teacher training techniques, must be recognized and met.

The search for improved methods of preparing prospective teachers seems to rest primarily with teacher training institutions. Of the many facets contained in traditional certification programs, the student teaching practices loom as a prime target for potential modification. The conventional "one student teacher per cooperating teacher" experience may not be the most effective and efficient manner in which to expose potential public school teachers in the actual functioning of a classroom. It may, in fact, be more advantageous, in terms of total growth opportunities, to have more than one student teacher serving simultaneously with a carefully selected, highly motivating cooperating teacher.

I. STATEMENT OF THE PROBLEM

This experimental project compared performance and perceived growth of secondary social studies student teachers who practice taught as members of student teams with those who practice taught singly.

---

[1] Maurice Mitchell, "The Knowledge Explosion. . .A Universal Problem," The New York Times, Section II, May 26, 1963.

The purpose was to (1) compare four different types of student teaching experiences; (2) compare perceived growth during the practice teaching experience by participating students and their respective cooperating teachers; (3) compare the performance of males and females within and among the four groups for any observable performance differences; and (4) determine whether trainees utilized certain techniques more effectively in their teaching as a result of the particular type of student teaching arrangement.

II. CLARIFICATION OF PROBLEM STATEMENT COMPONENTS

Definitions

For this report, the terms listed below are used in the following context:

Cooperating teacher. The public school teacher, contracted by the district, to whom the student teacher was assigned and under whose immediate direction the student teacher functioned during the practice teaching experience.

Student teaching teams. Groups of three secondary social science student teachers assigned concurrently to one cooperating teacher in a public secondary school.

Team student teaching. Cooperative planning, executing, and evaluating of learning activities, by the student teaching team, for the secondary public school pupils in the classes assigned for the practice teaching experience.

Solo student teaching. Planning, executing, and evaluating of learning activities, by a single individual student teacher, for the secondary public school pupils in the classes assigned for the practice teaching experience.

I-STEP. The individualized, secondary teacher education program at Brigham Young University, fall semester, 1969-70--a program where achievement and progress toward certification was measured by performance criteria from identified objectives, rather than completion of a specified set of courses.

Delimitations

The following delimitations were suggested:

1. The selection of the forty-eight practice teachers for this experimental project was limited to the eligible secondary social science student teachers, fall semester, 1969-70, at Brigham Young University.

2. Student teachers in subject matter fields other than social studies were not part of this project.

3. Ratings by the public school pupils were not solicited nor included as part of this experiment.

4. The public school pupils, who were student taught by the participants in this experiment, were not measured for achievement growth as part of the study.

III. PURPOSE AND SIGNIFICANCE OF THE RESEARCH PROJECT COMPLETED

Small group instruction and cooperative problem solving are receiving considerable attention as effective approaches to learning when used with public school students--at least current methods courses in teacher training institutions devote considerable attention to these matters. If activities in small groups are fruitful in terms of growth experiences for children, then it seems feasible that college students in a potential learning situation (student teaching) could likewise benefit from planning and instructing with their peers.

It may be that men and/or women perform differently and learn more effectively in a team student teaching experience than in a solo arrangement. In the event there are differences, perhaps better choices in assignment for the practice teaching opportunity could be made with this knowledge base.

If team student teaching is as effective as the current solo arrangement, the number of annual training stations required could be substantially reduced. This would be of particular importance to the teacher training institutions confronted with the increasing problem of locating sufficient desirable cooperating teachers with whom student teachers may be assigned. More effort could be devoted to identifying and training the truly outstanding public school teachers, and consequently, expose more trainees to these favorable models.

If the perceived professional growth (in areas of teacher knowledge, skills and attitudes) that occurs during the student teaching experience is greater for one group or another, it may be possible to produce teachers who can more quickly and adequately adapt to the professional requirements of a contracted position in the public school systems of the nation, by submitting future teachers to that type of practice teaching arrangement deemed most appropriate.

Since individuals tend to teach as they have been taught, it appears that students who are assigned in teams and who have more than one model for teaching (they not only observe the cooperating teacher to whom they are responsible, but each other as well) have a larger variety of experiences upon which to draw in the future than the solo student teacher who has only the single model of one public school teacher.

Students operating in the teams may be able to see and use more innovative teaching as a result of observing and participating in team teaching. Students assigned in teams also may be able to obtain additional assistance since they likely will solicit aid from their peers when they may be reluctant to pursue weaknesses with their cooperating teacher.

A university could receive monetary benefits from sending students out to practice teach in teams. Transportation costs could be considerably less than when students are assigned singly to a classroom. The savings could also accrue because of less travel for college supervisors.

Benefits may come to the public school students who can obtain specialized assistance; become involved in a greater variety of learning activities; have more ready resources available than may be possible in a solo student teaching arrangement.

This experiment was dedicated to discovering whether a "teaming" approach to the assignment of student teachers is a feasible undertaking, and if men or women make significantly greater gains, in regard to certain teacher related behaviors, as a result of specific student teaching background and experiences of "team" or "solo" assignments.

IV. METHODOLOGY UTILIZED

The best current techniques in behavioral science research depend upon comparing groups of persons with one another and observing differences among the groups. It is understood that extraneous variables which might contribute to the observed differences must be eliminated from the situation or equated in all the groups so that whatever effect these variables have, is the same in all the groups. Because it is difficult or impossible to identify all extraneous variables, matching groups or individuals on the basis of such characteristics is also difficult or impossible. Thus, the use of random selection and assignment throughout the experiment seemed to be the simplest and best procedure for equating groups of individuals. It meant that every individual had an equal chance of being assigned to any group. In this way extraneous characteristics possessed by various individuals were presumably distributed equally in each of the groups.

On the other hand, failure to equate the groups makes interpretation of any differences uncertain because one never knows whether the extraneous variables or the independent variable might be responsible for the difference observed.

All applicants for student teaching in the social studies for fall semester, 1969-70, at Brigham Young University were divided according to sex. From these groups a random selection was made until a total of forty-eight had been chosen. These were further randomized into four equal groups, each containing the same ratio of men and women. The groups were designated as Groups I, II, III, and IV.

The students in Groups I and II were assigned to the conventional teacher training program currently in operation at the university. That is, their professional education courses were taken according to the existing catalog sequence.

Group I received neither solo nor team student teaching experience, while Group II was assigned to student teach singly, according to the traditional university program. Therefore, these two groups had similar characteristics in that they satisfied the same student teaching prerequisites, and were, after the experience, compared in regard to changes that likely occurred during the practice teaching duration.

Groups III and IV were assigned to the Brigham Young University I-STEP teacher training program, which is an attempt to individualize the professional education experience of prospective secondary teachers. Instead of requiring trainees to complete a given number of semester hours of class work, they are required to achieve specified behavioral objectives. That is, achievement is criteria-based with focus on the performance rather than on completion of a sequence of courses. (Figure 1 shows how a student might achieve an objective in this system.)

In I-STEP, students work as directed, through suggested learning activities individually or in small groups (teams). When the student finished the activities for a given objective, he is evaluated to assess his attainment of the objective. If achievement is unsuccessful, modifications in the learning activities are prescribed and the student must eventually achieve the objective satisfactorily. Presentations by appropriate members of the teaching staff may be requested by individuals or teams as they proceed through the various units.

Members of group III (with I-STEP preparation) student taught in a solo arrangement, while Group IV (also I-STEP) was divided into teams of three and assigned as teams to cooperating teachers in the public school system for student teaching.

Since Groups III and IV had the same pre-student teaching on-campus instruction, it was possible to observe any differences which occurred between these two groups during the student teaching

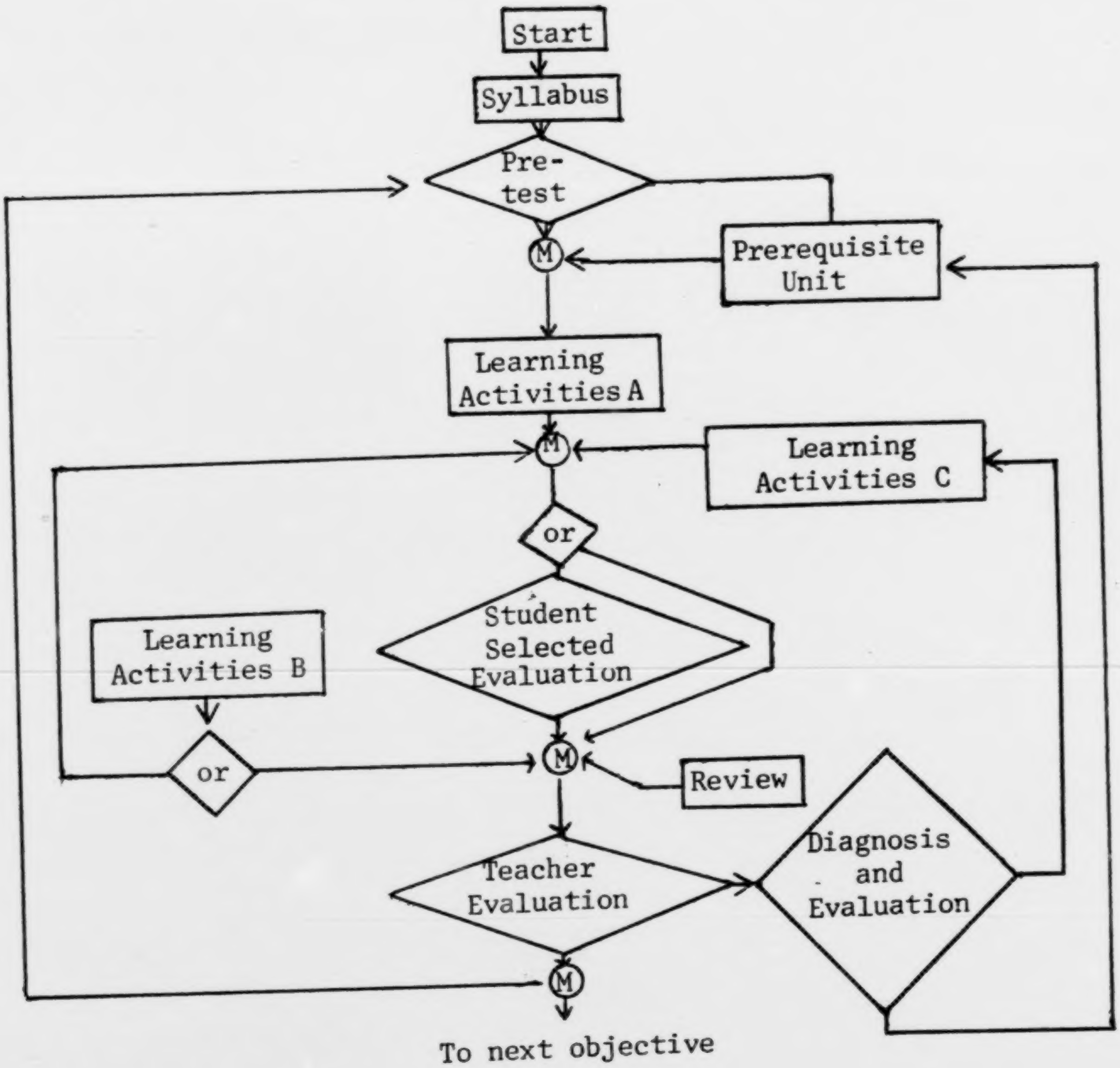
Start
Syllabus
Pre-
test
Prerequisite
Unit
M
Learning
Activities A
M
Learning
Activities C
or
Student
Selected
Evaluation
Learning
Activities B
or
M
Review
Teacher
Evaluation
Diagnosis
and
Evaluation
M
To next objective

FIGURE 1

FLOW CHART FOR I-STEP OBJECTIVES

Source: The Individualized Secondary Teacher Education Program at Brigham Young University, M-STEP Monograph Number 2, page 33.

period. Any differences in their performance could be attributed to the type of student teaching experience.

It was also possible to compare the four groups for any differences which were recorded as part of the experiment. Data were gathered which were analyzed comparing students with (1) no student teaching; (2) traditional solo student teaching; (3) solo student teaching with I-STEP background; and (4) team student teaching with I-STEP preparation. The structure of the groups also allowed for comparisons between men and women within and among the various student teaching arrangements above.

All student teachers within the study were randomly assigned to the available cooperating teachers in the public schools. All student teachers had met the necessary university prerequisites to qualify for a practice teaching appointment.

There were three phases to the evaluation for which data were assembled on the four student teaching groups described above.

Phase I. Each student teacher in Groups II, III, and IV was recorded on video-tape while teaching a fifteen minute lesson during the first week of student teaching. These lessons were presented to the students in a public school class to which the practice teachers had been assigned for their pre-professional experience.

Group I students, since they had no student teaching assignment, were video-taped, while teaching a fifteen minute lesson in a classroom randomly selected from those to which the other groups were assigned.

Each student teacher presented another fifteen minute lesson, which was also video-taped, during the last week of the student teaching period. Group I students had their second fifteen minute lesson recorded after the time lapse of student teaching for the other groups, although they did not experience any practice teaching themselves during the time lapse of this investigation. The post student teaching lesson for Group I was in the same classroom as the first lesson.

At the end of the semester, all the video-taped recordings were randomized, so that without identifying either pre or post student teaching, or designating specific group episodes, trained observers rated each teaching performance against certain criteria. (See Video Teaching Evaluation Form, in Appendix A.)

Phase II. The video-tapes obtained for the evaluation in Phase I of the study, were also viewed and analyzed for the classroom interaction present in the lessons. The Verbal Interaction Category System (VICS), developed by Amidon and Hunter,[2] was utilized for the comparisons made in this phase. (See Appendix B for full description of the instruments used.) The analysis was done by individuals trained in the use of the system involved, and was done by different individuals from the observers who made the evaluation in Phase I. A comparison indicating the frequency of interaction within various areas of the VICS matrix was made for each of the four groups. The design also allowed for a comparison of men and women in and between each of the four groups.

---

[2] Edmund Amidon and Elizabeth Hunter, Improving Teaching (New York: Holt, Rinehart and Winston, 1967).

Phase III. A questionnaire containing a series of items each on a five point scale) relating to teaching knowledge, skills, and attitudes was administered to all students in the experiment at the conclusion of the practice teaching duration. (See Appendix C for copies of the instruments utilized.) A similar set of questionnaires, containing the same items, but phrased so each cooperating teacher could rate the student teacher(s) assigned to him, was also administered. Comparisons were then made between the student self-ratings and those of the cooperating teachers for participants in Groups II, III, and IV. Group I students were excluded from this phase of the study since they did not student teach and therefore had no cooperating teacher rating for comparative purposes.

External and Internal Validity and Controls

All those who were cleared to teach secondary social studies in a student teaching position for the fall semester 1969-70, at Brigham Young University, were divided according to sex. Following this division, individuals were randomly selected and assigned to the four groups until each had an equal number of males and an equal number of females. The randomized approach was best suited for controlling the most elusive variables inherent in such a comparative experiment.

Cooperating teachers were assigned randomly to the students in Groups II, III, and IV. Since Group I did not student teach, no cooperating teachers were assigned to the students therein.

Four university supervising teachers were randomly assigned to the student teachers, so that each was responsible for three students from each of the four groups.

The judges of the lessons on video-tape, for the first two phases, were screened and a determination made of their consistency in rating similar episodes prior to their viewing the specific tapes included in the experiment.

The technicians who did the recording were oriented and had experience with the video equipment before going into the public school classroom to record the sessions for the experiment.

All students in the groups, and the cooperating teachers involved, knew they were participating in a research project, but did not know what was being investigated.

None of the student teachers had previous public school teaching experience, and none of the secondary school pupils involved in the study had had prior experience with student teaching teams.

The time limit for the experiment covered one semester. This is considered to be long enough for an adequate measure of the differences due to the experimental treatment, and yet not so long as to allow a host of other variables to intervene.

It was impossible to make identical student teaching environments for all student teachers, due to the many different factors affecting their particular situation. However, since by random assignment, each participant had the possibility of ending up in any one of the forty-eight stations, the information obtained could be compared and subjected to statistical analysis.

Due to the wide geographical area from which the Brigham Young University enrolls its students, it is felt that the interpretation of the data obtained through the experiment has at least some limited application beyond the Brigham Young University teacher education program. While the conclusions may not be directly generalizable to other training institutions, the results should provide a basis for certain inferences in connection with possible program adaptations which could be tested further, for local implications, by interested colleges and universities.

The .05 level of significance will be utilized in this report.

V. DESIGN FORMAT

Hypotheses

1. In terms of demonstrated ability to teach, there is no significant difference between students who are assigned to student teach in teams and students who practice teach singly.

2. Cooperating teachers will not rate team student teachers any differently, in terms of perceived teaching ability, (as it relates to knowledge, skills, and attitudes), than they do those who practice teach singly.

3. Student teachers who have taught as members of teams will rate their growth in teaching knowledge, skills, and attitudes no differently than those who have student taught singly.

4. Classroom interaction (as measured by VICS) will not be significantly different in lessons taught by student teaching teams and those taught by a solo trainee.

5. There will be no significant difference in the classroom interaction patterns between classes taught by men and those taught by women.

6. There will be no significant difference in the ratings of men (or women) who student teach as members of teaching teams and those who student teach singly, in terms of their ability to teach.

7. There is no difference in the rated ability to teach, between the men and women of any of the four groups representing different student teaching preparation and practice experiences.

Population/Sample Design

1. The population from which the student teachers in the study was drawn consisted of all the prospective secondary social studies teachers at Brigham Young University who were cleared to student teach during the fall semester 1969-70. They had all satisfied the requirements of the university which are prerequisite to the student teaching experience.

2. The sample consisted of twelve student teachers in each of four groups, selected randomly from the secondary social studies

student teacher applicants. (Forty-eight subjects were included in the study.) The ratio of men and women was the same in each of the four groups.

Observational Design

For Phase I, the 15 minute pre and post student teaching lessons were evaluated by trained observers using the micro-teaching evaluation from which included five-point ratings for the extent to which each of the following items were evident in the lesson:

1. Preassessment. Was there evidence that the student teacher determined the pupils; readiness for and/or previous experience with the concept(s) of the particular learning experience?

2. Exemplars. Were they clear, unambiguous exposures to the idea(s), or were they confusing and clouded with extraneous material which caused students to miss the main point of the lesson?

3. Higher than lowest cognitive level. Were students caused to respond frequently with other than memorized material or the repetition of what had been covered earlier in the lesson?

4. Student involvement. Were students expected and invited to participate throughout the lesson in other than a "listener" role?

5. Reinforcement of pupil behavior. Were acceptable responses acknowledged in such a way as to communicate to the pupil that his contribution was appreciated? Did this subsequently cause students to respond more voluntarily, or were student responses

largely ignored and thus discussion stifled?

6. Classroom poise and composure. Was student teacher able to handle unexpected situations without losing his "cool" and still move the group toward the lesson objective?

7. Concept application. Was provision made, as part of the lesson, for students to meaningfully include the new idea(s) presented in some specific manner, or was it simply "hoped" that proper transfer would occur later on?

8. Concept classification. Were pupils required to identify a previously unencountered object or event as being or not being an instance of the concept taught in the lesson?

9. Memorization. Were student responses almost entirely of a simple "recall" nature?

10. Problem solving. Were students expected to apply the principles and ideas of the lesson in a new situation in which they would produce a response requiring serious thought and analysis with proper use of previously learned concepts?

The rating instrument (see Appendix A) used for this phase of the evaluation was developed, tested, revised and validated in connection with the micro-teaching program at Brigham Young University over a period of three years.

Since the teaching episodes were each rated by three independent judges, it was possible to check for consistency among the raters to see if reported differences were in the same direction in relation to the four groups.

Comparisons were made between men and women within each group and among the four groups concerning the effectiveness the lessons reflected the inclusion of the elements on the evaluation instrument.

For Phase II, the same video-tapes were examined to provide information which was indicative of the classroom interaction that occurred during the lesson period. The VICS instruments were employed in this evaluation. By grouping responses in the different categories, provision was made to accumulate data in the following areas: (See Appendix B for detailed description of the categories and the record sheets used.)

1. Teacher initiated talk
2. Teacher response followed by teacher response
3. Pupil talk following teacher response
4. Teacher talk following pupil response
5. Extended pupil response to either teacher or another pupil
6. Pupil response followed by pupil response
7. Accepting behavior on the part of the teacher
8. Rejecting behavior on the part of the teacher
9. Silence or confusion

The data thus accumulated were analyzed, comparing the four groups and the males vs. females in the study, for differences in the relative amount of instructional time devoted to each of the major categories of the VICS matrix.

For Phase III, a questionnaire (copy in Appendix C), which called for an evaluation of sixty items on a five-point scale, was completed by student teachers and cooperating teachers indicating the practice teacher's growth during the duration of student teaching. The areas rated were in connection with teaching knowledge, teaching skills, and attitudes toward teaching. The questionnaire was administered at the conclusion of the practice teaching experience. The basic format of the instrument was developed, revised and retested over a period of six years by the Brigham Young University Teacher Education Department in connection with the student intern evaluation; the project was co-sponsored by the State Department of Public Instruction.

Since Group I did not student teach, it was not possible to include them in this phase of the study.

From an analysis of the questionnaire data, it was possible to compare the men and women within each of the groups, and among the groups, as to their view of personal growth in the three areas rated. Cooperating teacher ratings were also compared with the self-ratings of the trainees. It was possible, therefore, to examine and compare the perceived growth of student teachers with varying preparation and practical experiences with regard to knowledge, skills, and attitudes associated with teaching.

Figure 2 illustrates the relationship between the four groups as to their experience in the student teaching arrangements included in the study being reported.

	Pre-test	Training	Student teaching	Post-test
Group I	Video-taped 15 minute lesson in classroom	Traditional program	None	Video-taped 15 minute lesson in classroom
Group II	"	"	Solo	" (plus questionnaire)
Group III	"	I-STEP	"	"
Group IV	"	"	Team	"

FIGURE 2

OBSERVATIONAL DATA DESIGN FORMAT

Statistics Design

Using the format of Figure 3, Phase I data collected on the ratings of the pre-student teaching video-taped lessons were analyzed by use of analysis of variance. The four groups, the sex factor, and the three judges served as independent variables. From the results, it was possible to determine what differences existed among the four groups; between male and female; and among the judges, on the pre-test data.

Using the pre-test as the covariate (with means adjusted for original differences), the post-test data were subjected to an analysis of covariance. Significant differences were then identified and attributed to the type of student teaching training and experience. Sex differences were also evident in certain areas of comparison.

This analysis examined teaching episodes to determine if there existed, for a group of forty-eight student teachers, any significant differences in teaching ability, as demonstrated during a practice teaching experience in the public schools. The trainees were equally divided into four groups which then engaged in different pre-student teaching training and assignments. Comparisons were made for groups with (1) no student teaching; (2) traditional preparation and solo student teaching; (3) I-STEP preparation and solo student teaching; and (4) I-STEP background and team student teaching.

	Pre-Student Teaching						Post-Student Teaching					
	MALE			FEMALE			MALE			FEMALE		
Group	Judge 1	Judge 2	Judge 3	Judge 1	Judge 2	Judge 3	Judge 1	Judge 2	Judge 3	Judge 1	Judge 2	Judge 3
I												
II												
III												
IV												

FIGURE 3

STATISTICAL ANALYSIS FORMAT

To determine if significant differences existed in the various kinds of interaction present in the video-taped lessons of the four groups, Phase II was devoted to an analysis using the categories of the Verbal Interaction Category System (VICS). The matrix provides information concerning the number of times classroom responses fall within the general areas of (1) teacher initiated talk; (2) teacher responses; (3) pupil responses; (4) pupil initiated talk; and (5) silence or confusion.

By summarizing the results of the VICS tallies, it was possible to compare the relative amount of time each of the four groups spent in the various interaction categories, and to determine if there were significant differences among the groups. These data were subjected to the same analysis of variance; analysis of covariance technique employed in Phase I of the report.

The data for Phase III were obtained from the questionnaire concerning teaching knowledge, skills and attitudes. Each cooperating teacher and each student teacher responded to the items on the three rating sheets. A five point scale was associated with each item and was marked to indicate the raters perception of the student teachers growth in that specific area as a result of the practice experience in the public schools. That is, student teachers and cooperating teachers both expressed how they felt the trainee had developed during the course of his apprentice opportunity. From an analysis of variance treatment of the data thus accumulated, it was possible to determine if any significant differences existed between the groups; between the sexes, between trainee and cooperating teacher perception of growth in teaching knowledge, skills and/or attitudes, which seem important to successful teaching.

In summary, the statistical treatment employed upon the data assembled for this study included an analysis of variance in connection with all three phases. Phases I and II also contained post-test data which could be compared with the pre-test information by use of an analysis of covariance. Comparisons were made between the four different student teaching types and between the sexes, for the demonstrated differences observable in the collection instruments.

VII. THE TEXT OF THE THESIS REPORT

This chapter has contained a statement of the problem and a discussion of its various components, including methodology, design format, observational design, statistical treatment, and significance.

Chapter II contains a review of the literature related to this experimental project.

Chapter III presents the data obtained in the analysis of Phase I. This is the evaluation of the pre and post student teaching classroom video-tapes comparing the effectiveness of the utilization of certain teaching techniques.

Chapter IV reports the findings of Phase II. The video-recordings were analyzed on the VICS matrix in regard to the classroom interaction present in the lessons of the four groups.

Chapter V is a report of Phase III data. Student teacher and cooperating teacher evaluation of perceived growth in terms of items relating to knowledge about teaching, teaching skills, and attitudes toward teaching were compared for significant differences.

Chapter VI lists the summary statements along with recommendations and conclusions of the entire research project.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written about various components of teacher preparation, although a good share of it is mere opinion unsubstantiated by research. Regarding the student teaching experience itself, many indicate the need for more adequate measures of what actually takes place within the practicing teacher as a result of this seasoning opportunity, but again, little experimentation is recorded along these lines. With respect to the topic of this paper, "team student teaching" as compared to "solo student teaching," there are currently no references in the available literature which the author was able to locate. The treatment of this literature review will examine some of the past, present, and possible future implications concerning the training of potential public school teachers. Those areas most related to the subject of this investigation have been included in the review.

Preparation for teaching--past. Probably born of the notion that in order to learn a trade, a person should observe the tradesman plying the same, prospective school teachers have for years invaded classrooms where they have watched the routine mechanics of instruction demonstrated by the experienced "master teacher." Following such surveillance, it then became the challenge of the novice to "mimic" said routine as nearly as possible, under the critical eye of the "old pro."

According to Ames:

> Teaching is a process that can never be taught, but one that can seldom be executed successfully without training. It is half science, half art. The scientific principles can be learned, but the artistic elements of the process must come from the heart and soul of the teacher.[1]

Cohen, Neal, and others also stress the need for proper training of those who intend to propogate the profession.[2] With this widespread emphasis, it is of little wonder that "student teaching" in one form or another has been present historically.

The Association for Student Teaching reports:

> The forerunners of student teaching programs of the 19th century and the first half of the 20th century may be identified in some of the practices in the colonial period. Even in the colonial period (1647 to 1776) when school children were using the Hornbook and New England Primer, there had been some embryonic guided practice for those who were preparing to teach.[3]

In the research by Cubberley,it is reported that as early as 1722 the following notice appeared to tie in student teaching with apprenticeship:

> This indenture (apprenticeship) witnesseth that John Campbell hath put himself. . .apprentice to George Brownell Schoolmaster

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[1] Robert G. Ames, "What is Teaching?", Clearing House, 38:107, October, 1963.

[2] Arthur M. Cohen, "Teacher Preparation: Rationale and Practice," Junior College Journal, 37:21-25, 1967; and C. D. Neal, et. al., "Student Teaching; Partnership or Confusion," American School Board Journal, 154:41, June, 1967.

[3] "The Outlook in Student Teaching," 41st Yearbook of The Association for Student Teaching, 1962, p. 3.

> to learn the Art, Trade, or Mystery of Teaching. . . .And the said George Brownell doth hereby covenant and promise to teach or instruct. . .the said apprentice in art, trade or calling of a schoolmaster by the best measure he or his wife may or can.[4]

Such practices apparently continued during the developing years of this country and the attention devoted to the idea of student teaching continued to increase. Monroe discovered that just before the start of the twentieth century, according to a survey by Thomas Gray, in 1889, fifty-five normal schools out of ninety-four reporting provided for practice teaching in a school for children, and in 1895 the Committee on Normal Education found from a survey of sixty-three normal schools that only four reported no provisions for practice teaching.[5]

As early as 1903, teachers of education and student teachers were reading in a new book by Luckey about problems such as these: "Shall student teaching be under intelligent supervision and direction while yet connected with the university, or shall it be obtained wholly independently after students leave the university?"[6]

In 1933 Evenden pointed out a shortcoming of student teaching of that period when he said, "There is probably no professional phase of a teacher's preparation upon which there is more agreement in theory and more diversity in practice than in the development of necessary teaching skills during a period of supervised practice teaching."[7]

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[4] Elwood Cubberley, Readings in History of Education (New York: Houghton Mifflin Co., 1920), p. 386.

[5] Walter Monroe, Teaching Learning Theory and Teacher Education, 1890-1950 (Urbana: University of Illinois Press, 1957), p. 381.

[6] George W. Luckey, The Professional Training of Secondary Teachers (New York: Macmillan Company, 1903), p. 206.

DeBoer pointed out the inadequacies of student teaching programs even as late as the year 1940:

> So long as this phase of teacher's preparation was known as "practice teaching" the problem was relatively simple. The teacher education institutions simply farmed out the student to an elementary or secondary school for a certain period with relatively little supervision on the assumption that some practical experience in addition to theoretical training in college classes would automatically prepare the student for his professional duties. The present common requirements in most states of a separate course in "practice teaching" is based upon this fallacious assumption. Most teacher education institutions have long since discovered that such "practice teaching" may be more harmful than beneficial, and in most cases is of little value. If student teaching is not made a central and integral part of a total program, subject to direction in terms of the same fundamental objectives as those controlling the work in college classes, it can serve no purpose other than intensifying resistance to change in status quo.[8]

During the late 1940's and early 1950's, many student teaching programs in many different kinds of teacher education institutions underwent serious study.[9] As a result of this close scrutiny, changes in most cases were forthcoming, and more interest in student teaching programs was generated.

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[7] Edward S. Evenden, National Survey of the Education of Teachers, (Washington: United States Government Printing Office, Vol. 6, Bulletin No. 10, 1933), p. 120.

[8] George Axtelle and William Wattenberg, eds., Teachers for Democracy (New York: Appleton-Century Company, Inc., 1940), p. 285.

[9] Lindley Stiles, et. al., Teacher Education in the United States (New York: The Ronald Press Co., 1960).

Preparation for teaching--present. While the spurt of increased interest in student teaching programs, following World War II, brought about needed and desired changes, it is doubtful that any institution is completely satisfied with its present program. The search continues for improved training experiences, but apparently little headway has been made in identifying the changes that emerge as a result of "practice" sessions.

Sorensen makes the charge that:

> Although professional courses in teacher education have been subjected to a good deal of criticism, practice teaching has generally been regarded as so obviously necessary and useful that it has escaped unfavorable attention; even Dr. Conant has expressed his approval of this phase of teacher education. Consequently, it has received little evaluation. And yet, it would seem that some questions should be asked. We ought, for instance, to know more about what prospective teachers learn in practice teaching and what kind of experience is most useful.[10]

Andrews emphatically supports the foregoing position with his claim that:

> Student teaching is a paradox! Accepted by all for its essential reasonableness--even by the severest critics of teacher education--and beginning teachers regularly say it was the most helpful part of their professional preparation. Yet after 130 years little progress has been made in solving its critical problems. . . .More critically, no comprehensive theoretical base exists to guide the improvement of these experiences, very little substantial research findings of either the pure or applied type are yet available.[11]

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[10] Garth Sorensen, "What is Learned in Practice Teaching?", The Journal of Teacher Education, 18:173, Summer, 1967.

[11] L. O. Andrews, "Student Teaching Today is Educationally, Psychologically, and Financially Unsound" (Ohio State University, January, 1968, mimeographed paper), p. 1.

Although much of what has been written is loaded with opinion concerning that which should be done, much less evidence is available to support these theories. For example, considerable attention has been directed at producing some predicative device for screening potential teachers in advance of the "student teaching" experience--with little positive results.

Getzels and Jackson note that the difficulty of predicting teaching effectiveness has been well known among educational researchers for a long time, and the amount of research aimed at this problem has been impressive.[12] However, as Kracht and Casey conclude, "No single rating or factor yields a sufficiently high correlation with teacher performance to warrant its use as a single predictor of success in teaching."[13] This position is also supported by Downie and Bell.[14]

On the other hand, Chabassol maintains that some progress can be made in advance screening of potential teachers, but agrees that much more research must be done before the efforts can be conclusive.[15]

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[12] J. W. Getzels and P. W. Jackson, "The Teacher's Personality and Characteristics," Handbook of Research on Teaching (Chicago: Rand McNally, 1963), pp. 506-582.

[13] Conrad R. Dracht and John P. Casey, "Attitudes, Anxieties, and Student Teaching Performance," Peabody Journal of Education, 45:214-217, January, 1968.

[14] N. M. Downie and C. R. Bell, "The Minnesota Teacher Attitude Inventory as an Aid in the Selection of Teachers," Journal of Educational Research, 46:699-704, May 1953.

[15] D. J. Chabassol, "Possession of Certain Attitudes as Predictors of Success in Practice Teaching," Journal of Educational Research 61:304-6, March, 1968.

Bjerstedt points out that a "common error of much research has been to judge a student teacher as an actor, not as an interactor."[16]

Kirk and Amidon also feel strongly about the need for prospective teachers to look at teaching as a process of interaction with emphasis upon the involvement of the student and the interchange between teacher and learner.[17]

Still another approach gaining a lot of attention currently, is to have the practice teacher do some introspection. Fuller, Pilgrim and Freeland reported six stages of concern identified by student teachers from seminars conducted weekly during student teaching. These were:

1. Where do I stand?
2. How adequate am I?
3. Why do they do that?
4. How do you think I'm doing?
5. How are THEY doing?
6. Who am I?[18]

A pattern approximating this six stage sequence cropped up not only in other seminars which followed but in the case notes of interviews with scores of student teachers. These stages were considered sufficiently important to become one basis for selecting content and procedures for instruction of prospective teachers. Their concerns were considered important for two reasons:

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[16] Ake Bjerstedt, "Interaction Oriented Approaches to the Assessment of Student Teachers," Journal of Teacher Education, 18: 339, Fall, 1967.

[17] J. Kirk and E. Amidon, "When Student Teachers Study Interaction," Elementary School Journal, 68:97-104, November, 1967.

[18] F. F. Fuller, et. al., "Intensive Individualization of Teacher Preparation," The Association for Student Teaching, 46th Yearbook, 1967, pp. 160-65.

> First, the path from knowledge of subject matter to communication of subject matter is not simple and direct but complex and devious. The proponents of scholarship alone as preparation for teaching are doomed to empirical embarrassment simply because persons and, of course, teachers, are not fixed ratio input-output mechanisms, but rather jungles of intervening, and interferring or facilitating variables. One simple-minded but powerful class of variables is the teacher's own needs and concerns. Before pupil's interests and needs could be sensed by the student teacher, his own most pressing needs had to be satisfied.
>
> Second, the student teacher's stage of concern emerged as a rough index of his readiness to learn to teach. A student teacher preoccupied with a defiant child rarely could internalize instruction by university supervisors about teaching concepts, for example, no matter how many lesson plans he wrote.[19]

Apparently, a good deal of the current student teacher's effort is directed at satisfying what he perceives as his supervisor's objectives rather than his own. When his perception is not in harmony with that intended by the supervisor, the practice teacher faces frustration and unsatisfactory performance. Thus, attention is being focused on the role of the supervisor, as a means of improving the learning experience of pre-professional teachers.

Sorensen points out that:

> Students' understanding of what it is their instructors want of them would also be clarified if each teacher educator in both theory courses and practice teaching were to take pains to apply in his own teaching the principles he recommends.[20]

In keeping with this approach, Jordan makes the following suggestions to supervising teachers:

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[19] Ibid., pp. 165-66.

[20] Sorensen, op. cit., p. 178.

1. Recognize the purpose. (stimulating the growth and development of the teacher-to-be).
2. Begin with the goals. (what goals and responsibilities have been assigned for the student teaching experience).
3. Identify behavior that will demonstrate attainment of the objectives. (decide on and define the skills and behavior which will demonstrate their achievement).
4. Evaluation should be continuous. (systematic feedback).
5. Emphasize self-evaluation. (tapes and video recordings).[21]

Others are also stressing the need to consider more carefully the relationship of student teacher's personal perception of a meaningful experience during practice teaching, and the expectations of those with whom and under whose direction the student teachers labor.[22]

Current practices in teacher education have also been affected by the "innovation explosion," much of which has resulted from the significant technological advances of the age, and much of which has grown of necessity to meet ever-increasing demands upon educational institutions at all levels.

One of these innovations that appears both practical and valuable in assessing student teaching performance is the use ov Video Tape Recorders (VTR) for preliminary evaluations. Gustafson reports an experiment at Michigan State University in 1966 where several different models of VTR equipment were tested on practicing student teachers. It was found that the critique of the recorded session could be much more specific when it could be reproduced and reviewed as often as necessary to establish a desired point. Students who "saw themselves as others see them" could recognize the need for change more readily than had previously been the case with strictly verbal evaluation sessions following a lesson presentation.[23]

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[21] Archie C. Jordan, "Improving Student Teacher Evaluation," Peabody Journal of Education, 45:139-42, November, 1967.

[22] W. Sybouts, "Supervision and Team Teaching," Educational Leadership, 25:158-9, November, 1967; D. Triplett, "Student Teachers Rank Their Needs," Michigan Education Journal, 45:13-14, November, 1967; A. T. Soares, "Self-Perception of Student Teachers and the Meaningfulness of Their Experience," Journal of Teacher Education, 19:187-91, Summer, 1968.

Using not only the VTR, but peers in the critique, enabled students to talk freely about areas in which improvement needed to be made, as reported by Wagner.[24] In addition, he maintains, "It enables the student to become aware of how his future students will see him. It enables the student teacher to develop self-confidence in his ability to make the classroom learning process an exciting, living, experience."[25]

The growth of team teaching in the public schools is another practice that has implications for the preparation of teachers.

As Fraenkel purports, "Numerous claims have been put forth as to the superiority of team teaching as an instructional arrangement to produce learning. Little empirical evidence exists, however, to support these assertions."[26]

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[23] Kent L. Gustafson, "Portable VTR's for Student Teachers," Audio Visual Instruction, 12:1070-1, December, 1967.

[24] Hilmar Wagner, "Peer Teaching," Texas Outlook, 52:20-1, August, 1968.

[25] *Ibid.*, p. 21.

[26] Jack R. Fraenkel, "A Comparison of Achievement Between Students, Taught by a Teaching Team and Students Taught in Traditional Classes on a Standardized Examination in U. S. History," Journal of Educational Research, 61:43, September, 1967.

After a study of eleventh-grade students enrolled in U.S. History in which some were "team taught" and the remainder taught in the traditional single teacher arrangement, it was concluded "that teaching teams may indeed be more effective than conventional classroom arrangements in producing certain types of learning."[27]

In considering the impact of team teaching on the professional writings, Boyan states that "Although the first reference in the Education Index to team teaching appeared in 1957, there is now an extensive literature on the topic."[28]

While much has recently been written on the topic of team teaching, the literature contains little evidence that consideration has been given to potential teachers in training them for possible roles as members of such teams when they are contracted to perform teaching duties in a public school.[29]

Possibly the most related studies for involving practice teachers as members of teaching teams fall in the area of another rather recent educational experiment--intern teaching. Even though the role of the intern is somewhat different from that of the usual student teacher, much of what has been learned in this organizational arrangement has implications for changes which could be made in conventional practice teaching assignments.

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[27] *Ibid.*, p. 46.

[28] Norman J. Boyan, "The Intern Team as a Vehicle for Teacher Education," *Journal of Teacher Education*, 16:18, March, 1965.

[29] J. A. Meyer, "Group Grope: Problem of Team Teaching," *Clearing House*, 43:362-4, February, 1968; M. V. Korb, "Positive and Negative Factors in Team Teaching," *Mathematics Teacher*, 61:50-3, January, 1968; Stuart E. Dean, "Team Teaching--A Review," *School Life*, 1961, p. 44.

To quote Boyan:

> It is apropos to examine critically some of the essential differences between conventional student teaching and the emerging internship assignment. The most obvious difference is that the intern is a salaried employee of the school district in which he works. The student teacher, from the point of view of both the university and the school district is a university student. If a school district agrees to accept a student teacher, the work of the school district continues without interruption should the student teacher be unable to begin or to complete his assignment as originally agreed. On the other hand, once a school district agrees to employ a salaried teaching intern, it assumes most of the same obligations and risks as it would in the employment of any beginning teacher.[30]

In studying aspects of "successful" and "unsuccessful" interns, Haberman concludes that:

> The skill and art of teaching are embodied in the ability to use public ideas. By questioning, by reflecting back to the pupil for reconsideration, and by combining and extending his thoughts, the successful intern engages in the basic acts of teaching. All of these critical behaviors are derived from the intern's initial willingness and ability to listen. The elementary truth is that less successful interns tend to regard their pupils' talk as some form of interference, while successful interns tend to regard the eliciting of pupil talk as a major objective of their lessons.[31]

There appears to be some evidence that the more positive results of team teaching can be transferred to learning situations as well. Several articles[32] support the conclusions of a study at the Benjamin Franklin High School in Tonawanda, New York, where students were paired as buddies for their learning assignments. They worked together on tests, homework, and all other related activities.

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[30] Boyan, op. cit., p. 17.

[31] Martin Haberman, "The Teaching Behavior of Successful Interns," Journal of Teacher Education, 16:20, June, 1965.

> At first teachers wrestled with the problem of how to pair students. They decided to allow free choice. The teachers were amazed. Students who teachers thought would never get along decided to team up. Students confessed to working harder because they didn't want to appear lackadaisical to their partners. Some students too timid to ask a question in class asked their partners, if both didn't know the answer, they had enough assurance to approach the teacher as a team.[33]

Perhaps such a team learning approach has possibilities for college students in teacher training, particularly during practice teaching.

As might be expected, not all reports of efforts to teach in teams are favorable. After viewing and analyzing different programs operating under the title of "team teaching," Olson concludes that:

> Team teaching is no panacea. It will not make slow learners bright. It will not reduce the range of individual differences in student achievement and ability. It will not automatically create a spark of interest in the disaffected student. And, finally, it will not automatically convert mediocre teachers into outstanding teachers.[34]

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[32] E. B. Smith, et. al., "Toward Real Teaching; A Team Internship Proposal," Journal of Teacher Education, 19:7-16, Spring, 1968; M. R. E. Parachini, "Experiment in Team Teaching," Catholic School Journal, 68:49-50, January, 1968; D . C. Maurer, "Pair Learning Techniques in High School," Phi Delta Kappan, 49:609-10, June, 1968.

[33] "Team Learning Tries Out Buddy System," Nation's Schools, May, 1968, (Quoted from McGraw-Hill World News).

[34] Carl O. Olson, "Why Teaching Teams Fail," Peabody Journal of Education, 45:15-20, July, 1967.

Preparation for teaching--future. Recognizing that much has been done in terms of meeting modern demands for improved curricular methods and materials, the institutions charged with providing the pre-teaching experiences of future teachers must continue to be alert to the dynamics of the times. Gorman claims that:

> Teachers throughout recorded history have tried in various ways to reach their students, yet problems of passive learners and dominating teachers still exist. In the American society, which attempts education for all its youth, these problems have become more and more acute. The culturally deprived child, the growth of a delinquent subculture, the increasing numbers of dropouts, the racial minorities who seek integration into the larger society, the underachieving college-bound--all these youngsters present the school with an acute challenge that cannot be ignored or relegated to textbook theorizing.[35]

New focus is being given to the role of the teacher in light of recent curricular and methodological changes. As McCurdy asserts:

> The role of the teacher is now rapidly shifting from that of a performer or presenter of subject matter to that of an educational designer or programmer. The presentation function of the teacher will gradually be assumed by libraries of instructional films and video tapes.
>
> A good teacher or preferably a team of teachers must do the same critical thinking that one would do if he were writing a program, either for a computer or for a more simplified teaching machine. That is he (or they) must state the objectives of instruction in very specific terms as behavioral outcomes including behaviors in the affective as well as cognitive areas.[36]

What is to be done in preparing teachers for this radically different role? Bjerstedt maintains that preparation for student teaching can and needs to be improved and suggests that more realistic school situations may also be used by means of a video tape recorder for analysis of the interaction.[37]

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[35] Alfred H. Gorman, Teachers and Learners--The Interactive Process of Education (Boston: Allyn & Bacon, 1969), p. vi (preface).

[36] Donald McCurdy, "Tomorrows' Teacher: New Role?", Peabody Journal of Education, 45:348-50, May, 1968.

Sorensen also recognizes the need to bring about instructional improvements in connection with the preparation of teachers when he states:

> If the purpose of professional training is to provide the prospective teacher with a conceptual framework and a set of skills which will enable him more effectively to plan, test and continuously correct his own instructional procedures then, changes are needed in our teacher-training programs, practice teaching included, which are quite unlike those commonly recommended by critics of teacher education.[38]

While assuming a somewhat extreme position, Rugg apparently feels that the idea of proper exposure to various teaching techniques is a must for all prospective teachers, including proper supervision.

> I may be almost alone in the thesis that any young person who really wants to teach should have a trial in a teachers college, regardless of segregating devices such as objective tests of intelligence and achievement and the division of youths into uppers and lowers. Let's find out in a teachers college how "good" or "bad" a prospect is, professionally, and more important, let's discover the excellent. In forty years, I have found almost no one who has been concerned with the worth of prospective teachers.[39]

Recent developments in curriculum renovation have affected many practicing public school classroom teachers (hopefully for the better) but institutions of higher learning, while strongly advocating the need for such changes at their level also, seem to have been somewhat slower in adopting or adapting the improved techniques than have secondary schools, as a whole. Just what should be done in terms of changing current practices in the training of teachers who are to be equipped to meet the dynamic and exciting challenges of tomorrows' schools is an extremely perplexing concern. As Mitzel and Gross point out, the task of determining what students have learned in any given course is remarkably complex and difficult.[40] Likewise, determining what has been or should be learned during a practice teaching experience is elusive and often formidable to assess. Nevertheless, continued attempts must be made to bring about necessary improvements. According to Gorman, as he cites the current dilemma:

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[37] Bjerstedt, op. cit., pp. 339-57.

[38] Sorensen, op. cit., p. 177.

[39] Earle U. Rugg, "Who Shall be Educated for Teaching?", Journal of Teacher Education, 16:225, June, 1965.

> Squarely astride the traditional practices that are still quite solidly with us and the sometimes bewildering kaleidoscope of newer alternatives sits the classroom teacher. In the hands of this very important person lies the real direction the schools will take. It will be his wisdom--or lack of it--that will influence decisions as to which parts of older education will be retained and which areas of new knowledge and skills will be developed in depth and added to the repertoire of teaching and learning.[41]

Thus, the classroom model has great influence on perpetuating the existing programs or initiating desired changes. As student teachers observe, they tend to imitate in their own instructional procedures later on when they have responsibility for a classroom.

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[40] H. E. Mitzel and Cecily Gross, "A Critical Review of the Development of Pupil Growth Criteria in Studies of Teacher Effectiveness," Research Series 31. (New York Division of Teacher Education, Board of Higher Education of the City of New York, 1956).

[41] Gorman, op. cit., p. 7.

Considering this, and the emphasis currently enjoyed by the idea of team teaching, it seems pertinent to suppose that perhaps some experience in this particular method, as part of the preparation program of future teachers, might be one step toward achieving some of the desired outcomes related to teacher education as it ought to become.

Goodlad sums it up as follows:

> Usually the transition from teacher in training to teacher in charge is an abrupt one. . . . Team teaching appears to offer a unique opportunity for easing the beginner into teaching. . . . In such a setting the student or beginning teacher shares in the enterprise according to his growing ability to assume responsibility and, at the same time, participates in the educational discourse which naturally accompanies team planning and teaching.... But one must look at curriculum planning in teacher education with a more jaundiced eye. Our objectives are not clear. Our evaluation stresses low-level cognitive abilities and sidesteps performance.
>
> The first step in rigorous curriculum planning is the formulation of precise objectives which are clear to students, professors, cooperating teachers, supervisors, and principals. The second is the prescription of course and laboratory work designed to achieve these objectives. The third is the evaluation of these means to see how effectively they are achieving the desired ends. Then, perhaps we will have evidence about the effectiveness of laboratory experience in the education of teachers.[42]

If a team teaching assignment, as suggested by Goodlad, might be of assistance in easing a new teacher into the profession, it could also be possible that a practice experience as a member of a teaching team could be beneficial in aiding the prospective teacher to make the transition less painfully from "teacher in training to teacher in charge."

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[42] John I. Goodlad, "An Analysis of Professional Laboratory Experience, in the Education of Teachers," Journal of Teacher Education, 16:263, September, 1965.

One of the leading proponents for immediate change in current teacher preparation practices, Andrews, considers the problem from the standpoint of budget when he asks the question, "Can higher education really afford to provide a high quality, professional student teaching experience for 220,000 students annually when nearly two-thirds of each class will not be teaching three years after graduation?"[43]

In maintaining that the demands of the day are far outstripping normal progress, Andrews further suggests that a time for intensive study and action has arrived. One improvement approach he offers is:

> Redesign the direct experience in teacher education into a series which could in fact produce a truly professional teacher--demonstrably competent and with assured self-confidence--and at the same time weed out many of the "insurance seekers" and the potential teacher drop-outs.[44]

One aspect of this possible redesigning is the subject of this proposed research--whether or not a team student teaching experience is both practical and effective in meeting some of the problems surrounding the task of adequately preparing the necessary teachers for the public schools in this world of rapid change.

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[43] Andrews, op. cit., p. 2.

[44] Ibid.

CHAPTER III

COMPARATIVE ANALYSIS OF CONCEPTUAL BEHAVIOR EXHIBITED IN PRE AND POST STUDENT TEACHING EPISODES

Introduction

Forty-eight randomly selected and assigned social studies student teachers were divided into four groups. Student teaching preparation and participating was experienced as follows:

Group I: No student teaching experience.

Group II: Conventional student teaching experience--solo.

Group III: Individualized Secondary Teacher Education Program--(I-STEP) preparation--solo student teaching.

Group IV: I-STEP preparation--team student teaching experience.

Each participant taught a lesson at the beginning of the practice teaching interval and again at the termination of the experience (one semester). These lessons were video-taped in the public school classroom to which the practice teacher had been assigned.

The video-recordings were randomized and then evaluated by three judges, independently of one another. The tapes were rated for the degree to which various elements of classroom activity were evident. Each category was rated on a five point scale, with the higher score reflecting more favorable inclusion of that element in the lesson being rated. There were ten areas receiving attention in this phase of the study: (A detailed breakdown of each item is contained in Appendix A).

1. Preassessment
2. Exemplars
3. Higher than Lowest Cognitive Level
4. Student Involvement
5. Reinforcement of Pupil Behavior
6. Classroom Poise and Composure
7. Concept Application
8. Memorization
9. Concept Classification
10. Problem Solving

Analysis of Data

The tables which follow contain the means and F ratios for each of the ten categories, comparing the lessons taught at the beginning of the student teaching assignment with the lessons recorded at the conclusion of practice teaching. In order that initial differences, if any, might be compensated for, the data from the pre-test (first lesson recorded) were subjected to an analysis of variance. Using the adjusted pre-test means as the covariate, the post student teaching episodes were analyzed through the application of covariance analysis and tested for significant differences. Due to the randomization utilized in the experimental design, any observed differences could then be attributed to the treatment employed in the study (background preparation for the student teaching and the type of assignment--team or solo).

Interactions were tested between the four groups and between the male and female participants within and among the groups. The judges ratings were also tested for consistency. The "F" ratios for each of the categories are contained in the tables which follow, along with the sources being compared. Where significant differences were recorded, supplementary tables containing appropriate means are included. The specific means were subjected to a Newman-Keuls Sequential Range Test so significant differences could be attributed to the proper sources.

Significant differences are reported under column "P" at the .05 and .01 levels.

The first category evaluated by the judges concerned the concept of preassessment. In viewing the video-taped teaching episodes, evaluators considered evidence that the student teacher determined pupils' readiness for, or previous exposure to, the concepts of the particular lesson.

Table I shows there were no significant differences in the data from the four groups or between the men and women student teachers. Apparently, the student teaching preparation programs (as represented by the four groups studied) were equally effective in preparing potential teachers to preassess the learning level of their pupils.

TABLE I

ANALYSIS OF COVARIANCE FOR THE PREASSESSMENT POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	2.221	1.19	NS
Sex	1	0.714	0.38	NS
Group X Sex	3	0.141	0.07	NS
Error 1	39	1.860		
Judges	2	0.770	1.62	NS
Group X Judges	6	1.096	2.31	NS
Sex X Judges	2	0.746	1.57	NS
Group X Sex X Judges	6	0.171	0.36	NS
Error 2	79	0.474		

One aspect of introducing new ideas, centers around the use of appropriate exemplars.

The video-taped lessons were judged to determine whether the exemplars used were clear, unambiguous exposures to the ideas presented or whether they were confusing and clouded with extraneous material which caused students to gain an unclear conceptual image.

Table II reflects that the only significant difference occurred between judges. In several of the categories to follow, similar differences were reported between judges ratings. In each case the same judge had recorded higher scaler ratings than the other two, but always in the same rank order. That is, where judge 1 rated the performance of the four groups in the following sequence: IV, II, III, I, so did the other two. Their values differed, but not their perception of which group was more effective in utilizing the particular technique being evaluated. Therefore, no further reference will be given to the differences between judges in the analysis of the reported data.

It seems that student teachers in each of the groups tested were able to select appropriate referents for the concepts in their lessons with no significant variation. Apparently, preparation background for student teaching was somewhat comparable for all four groups with regard to this category.

TABLE II

ANALYSIS OF COVARIANCE FOR THE EXEMPLARS POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.840	0.58	NS
Sex	1	0.470	0.32	NS
Group X Sex	3	0.665	0.46	NS
Error 1	39	1.427		
Judges	2	5.676	11.02	<.01
Group X Judges	6	0.860	1.67	NS
Sex X Judges	2	0.597	1.15	NS
Group X Sex X Judges	6	0.462	0.89	NS
Error 2	79	0.515		

While students are often expected to indicate their learning by simply repeating specifics committed to rote memory, one measure included in the study being reported considered the extent to which pupils were caused to respond with other than memorized material or the repetition of what had been covered earlier in the lesson. It is felt that such responses indicate a more complete mastery of the conceptual material than memorization of facts alone.

Student teachers in all four groups, both male and female, caused their pupils to operate at higher than lowest cognitive levels with about the same proficiency. This is borne out by the non-significant "F" ratios in Table III.

TABLE III

ANALYSIS OF COVARIANCE FOR THE HIGHER THAN LOWEST COGNITIVE POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	1.179	1.60	NS
Sex	1	0.992	1.35	NS
Group X Sex	3	1.495	2.04	NS
Error 1	39	0.732		
Judges	2	1.626	4.18	<.05
Group X Judges	6	0.740	1.90	NS
Sex X Judges	2	0.996	2.56	NS
Group X Sex X Judges	6	0.191	0.49	NS
Error 2	79	0.389		

The degree to which the pupils were involved in the lesson was considered as another aspect in the evaluation of the videotapes. The judges rated each episode on the extent to which students were expected and invited to participate throughout the lesson in other than a "listener" role.

Table IV singles out the fact that a significant difference occurred between the four student teaching groups. The means for these differences are shown in Table IV-A. No other differences were observed in the interactions tested with respect to student involvement in the video-recorded lessons.

TABLE IV

ANALYSIS OF COVARIANCE FOR THE STUDENT INVOLVEMENT POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	3.522	3.57	$<.05$
Sex	1	0.058	0.05	NS
Group X Sex	3	1.116	1.13	NS
Error 1	39	0.987		
Judges	2	0.489	1.50	NS
Group X Judges	6	0.599	1.85	NS
Sex X Judges	2	0.196	0.60	NS
Group X Sex X Judges	6	0.470	1.45	NS
Error 2	79	0.324		

The Newman-Keuls Sequential Range Test was employed in determining the specific groups whose means were significantly different with regard to student involvement. As indicated in Table IV-A, the student teachers with traditional preparation background did not generate as much pupil participation as any of the other three groups. The I-STEP team student teachers had the highest overall mean in this category, while the group that did not student teach had a higher mean than either of the solo groups--I-STEP or traditional.

TABLE IV-A

NEWMAN-KEULS ANALYSIS OF GROUP MEANS WITH REGARD TO STUDENT INVOLVEMENT

		Difference of Means		
Group	Means	Traditional Solo	I-STEP Solo	No S.T.
I-STEP Team	3.350	0.724*	0.208	0.137
No Student Teaching	3.213	0.587*	0.071	
I-STEP Solo	3.142	0.516*		
Traditional Solo	2.626			

*Significant at the .05 level

In the fifth category, evaluators looked for and rated evidence of reinforcement behavior on the part of the student teachers. Were acceptable responses acknowledged in such a way as to communicate to the student that his contribution was appreciated? Did this subsequently cause students to respond more voluntarily? Answers to such questions were sought in determining positiveness of the climate between teacher and pupil. Group differences were significant at the .01 level in this category. Table V presents the "F" ratios for the various sources tested in this analysis of covariance, and Table V-A contains the means of the groups. The means of the non-significant interactions are not presented in separate tables.

TABLE V

ANALYSIS OF COVARIANCE FOR THE REINFORCEMENT OF STUDENT BEHAVIOR POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	4.385	9.10	<.01
Sex	1	0.0009	0.01	NS
Group X Sex	3	0.128	0.26	NS
Error 1	39	0.482		
Judges	2	2.261	6.66	<.01
Group X Judges	6	0.458	1.35	NS
Sex X Judges	2	0.130	0.38	NS
Group X Sex X Judges	6	0.396	1.16	NS
Error 2	79	0.339		

In the Newman-Keuls analysis of the differences between group means, the I-STEP team trainees and the I-STEP solo student teachers demonstrated significantly greater use of reinforcing behavior in dealing with pupils than solo practice teachers from the traditional program or those without student teaching experience. Table V-A contains the results of the sequential range test for this category.

TABLE V-A

NEWMAN-KEULS ANALYSIS OF GROUP MEANS WITH REGARD TO REINFORCEMENT OF STUDENT BEHAVIOR

		Differences of Means		
Group	Means	Traditional Solo	No S.T.	I-STEP Solo
I-STEP Team	3.070	0.782**	0.370*	0.102
I-STEP Solo	2.968	0.680**	0.268*	
No Student Teaching	2.700	0.412*		
Traditional Solo	2.288			

*Significant at .05 level
**Significant at .01 level

The trainees were also rated on their ability to maintain their composure when confronted with unexpected or unusual situations during the period of the video-taped lessons. Reacting with a sense of humor or other appropriate responses which minimized the interruptions and still moved the group toward the lesson objective, was considered favorable as opposed to sarcasm and obvious frustration.

The "F" ratio resulting from the four group means indicated differences between the groups at the .01 level of significance. This is reflected in Table VI along with the other non-significant interactions.

TABLE VI

ANALYSIS OF COVARIANCE FOR THE STUDENT TEACHER COMPOSURE POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	4.592	7.77	<.01
Sex	1	1.172	1.98	NS
Group X Sex	3	0.524	0.88	NS
Error 1	39	0.591		
Judges	2	5.642	15.46	<.01
Group X Judges	6	0.968	2.65	NS
Sex X Judges	2	0.324	0.88	NS
Group X Sex X Judges	6	0.156	0.42	NS
Error 2	79	0.365		

The Newman-Keuls Sequential Range Test, applied to the group means in Table VI-A, show the I-STEP team and I-STEP solo trainees had significantly higher ratings in maintaining their composure in front of a class than either of the other two groups. That is, student teachers having the traditional preparation program and those with no practice teaching opportunities were demonstrably more upset and unable to cope with classroom disturbances than were groups which participated in the I-STEP training.

One of the measures of successful teaching seems to be associated with the pupils' ability to apply the concept(s) presented

TABLE VI-A

NEWMAN-KEULS ANALYSIS OF GROUP MEANS WITH REGARD TO TEACHER MAINTAINING COMPOSURE

		Differences of Means		
Group	Means	Traditional Solo	No S.T.	I-STEP Solo
I-STEP Team	3.527	0.778**	0.499*	0.111
I-STEP Solo	3.416	0.667**	0.388*	
No Student Teaching	3.028	0.279		
Traditional Solo	2.749			

*Significant at .05 level
**Significant at .01 level

in the learning situation. As one of the rated categories, judges were asked to examine the video-tapes to see if provision was made, as part of the lesson, for students to meaningfully include the new idea(s) of the experience in some specific manner. Some presentations were made with the apparent "hope" that students could transfer the idea appropriately to new situations later on, while others caused pupils to demonstrate acquisition of the concept by applying it immediately where such application could be evaluated by the student teachers and modifications made to compensate for and correct erroneous conceptualization on the part of the learner.

Table VII has an "F" ratio which is significant at the .01 level in measuring differences between the four student teaching groups.

TABLE VII

ANALYSIS OF COVARIANCE FOR THE APPLICATION OF CONCEPT POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	7.894	8.02	<.01
Sex	1	1.985	2.01	NS
Group X Sex	3	0.878	0.89	NS
Error 1	39	0.984		
Judges	2	6.366	11.15	<.01
Group X Judges	6	0.225	0.39	NS
Sex X Judges	2	0.594	1.04	NS
Group X Sex X Judges	6	0.733	1.28	NS
Error 2	79	0.570		

The differences in the group means, subjected to the sequential range test, indicated significantly greater application of the concept in classes taught by I-STEP team trainees than by student teachers in any other group. The difference was significant at the .01 level between the team group and traditional solo group. The same level of significant difference was observed between the team teachers and those with no student teaching. A .05 level was recorded between the two I-STEP groups, with the more favorable rating going to the team participants. The means and differences can be examined in Table VII-A.

Considering the use of rote memory, as a tool for expressing retention of new ideas, the interactions reported in Table VIII show

TABLE VII-A

NEWMAN-KEULS ANALYSIS OF GROUP MEANS WITH REGARD TO APPLICATION OF CONCEPT

		Difference of Means		
Group	Means	Traditional Solo	NoS.T.	I-STEP Solo
I-STEP Team	3.090	1.094**	0.915**	0.604*
I-STEP Solo	2.486	0.490	0.311	
No Student Teaching	2.175	0.179		
Traditional Solo	1.996			

*Significant at .05 level
**Significant at .01 level

no significant differences. Apparently, the type of student teaching experience (as exemplified by the four groups in the study) has no bearing on the extent or effectiveness with which pupils are led to utilize memorization as a "recall" device. There were no differences between male and female participants in connection with this category.

Through the processes of differentiation, generalization, and abstraction, students can be assisted in clarifying conceptual material so that it is not easily confused, vague, or unclear when encountered in situations other than the specific one in which it was learned.

A "one instance" exposure to a new idea is often not sufficient to establish in the mind of the learner the uniqueness of the concept

TABLE VIII

ANALYSIS OF COVARIANCE FOR THE MEMORIZATION POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	2.282	1.03	NS
Sex	1	3.102	1.40	NS
Group X Sex	3	1.077	0.48	NS
Error 1	39	2.212		
Judges	2	0.686	0.90	NS
Group X Judges	6	0.469	0.63	NS
Sex X Judges	2	0.019	0.02	NS
Group X Sex X Judges	6	0.748	0.99	NS
Error 2	79	0.754		

and it may later be applied inappropriately and incorrectly. When students are required to identify a previously unencountered object or event as being or not being an instance of the concept under consideration, possible confusion in later application is greatly reduced. This is due to the immediate feedback that can be provided by the teacher. The degree to which the student teachers in the four groups aided their pupils in concept classification exercises was evaluated by the judges and the results presented in Table IX. The "F" ratios for the group interactions was significant at the .05 level. There were no observable differences between the sexes in regard to the use of concept classification techniques.

TABLE IX

ANALYSIS OF COVARIANCE FOR THE CONCEPT CLASSIFICATION POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	3.037	3.74	<.05
Sex	1	0.377	0.46	NS
Group X Sex	3	0.705	0.86	NS
Error 1	39	0.812		
Judges	2	4.849	11.25	<.01
Group X Judges	6	0.696	1.61	NS
Sex X Judges	2	0.663	1.53	NS
Group X Sex X Judges	6	0.401	0.93	NS
Error 2	79	0.431		

The I-STEP students (both team and solo trainees) were significantly different from the traditional solo student teachers in their use of lesson procedures which provided the pupils with more than one opportunity to demonstrate their ability to properly classify newly acquired concepts. The public school students taught by the I-STEP student teachers made better transfer of the concept(s) to unfamiliar circumstances than did pupils of student teachers who had their background in the traditional program or those who did no student teaching. The means and differences for this interaction category are recorded in Table IX-A.

TABLE IX-A

NEWMAN-KEULS ANALYSIS OF GROUP MEANS WITH REGARD TO CONCEPT CLASSIFICATION

Group	Means	Differences of Means Traditional Solo	No S.T.	I-STEP Team
I-STEP Solo	2.139	0.536*	0.256	0.016
I-STEP Team	2.123	0.520*	0.240	
No Student Teaching	1.883	0.280		
Traditional Solo	1.630			

*Significant at .05 level

While successful problem solving is a desirable end result of much classroom instruction, the four groups compared in this study showed no significant differences in their ability to bring pupils to that stage in the lessons recorded. Table X indicates a tendency for there to be a difference between groups but it was not significant at a critical level. It appears that for the groups in this study, and for content of the lessons presented, problem solving was not a significantly different component. The comparative data for the interactions in this category are given in Table X.

TABLE X

ANALYSIS OF COVARIANCE FOR THE PROBLEM SOLVING POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	3.501	2.35	<.10
Sex	1	2.002	1.34	NS
Group X Sex	3	1.177	0.79	NS
Error 1	39	1.485		
Judges	2	11.502	14.18	<.01
Group X Judges	6	0.890	1.09	NS
Sex X Judges	2	1.339	1.65	NS
Group X Sex X Judges	6	0.726	0.89	NS
Error 2	79	0.811		

SUMMARY

Forty-eight social studies student teachers were randomly selected and assigned to four different professional education preparation programs. Each group was evenly divided with male and female participants. The assignments were:

1. No student teaching experience; taught a pre and post video-taped lesson in public school but no teacher training experience in between them.

2. Traditional preparation sequence; solo student teaching with a pre and post video-taped lesson.
3. I-STEP preparatory activities; solo student teaching with a pre and post video-taped lesson.
4. I-STEP preparatory activities; team student teaching with a pre and post video-taped lesson.

The video-recordings were made of lessons presented by each participant, in the public schools, at the beginning of student teaching and again at the conclusion of this experience.

Judges, unacquainted with the group assignment of the trainees or with the pre and post episodes, rated the presentations in terms of effective utilization of each of the following teaching tools:

1. Preassessment
2. Exemplars
3. Higher than Lowest Cognitive Level
4. Student Involvement
5. Reinforcement of Pupil Behavior
6. Classroom Poise and Composure
7. Concept Application
8. Memorization
9. Concept Classification
10. Problem Solving

An analysis of covariance statistical treatment of the data obtained from the evaluations produced the following significant differences between groups or sexes. Differences are listed at the .05 level, or less.

1. The group that did no student teaching had ratings higher than the traditional solo group for two categories:

    a. degree to which students were involved in the lesson activities, and

    b. extent to which student teachers reinforced acceptable pupil behavior.

This group did not have any ratings significantly higher than either I-STEP group for any of the ten categories considered in this study.

2. The group participating in the traditional student teaching program had the lowest means in all categories where significant differences were recorded. These consisted of:

    a. student involvement in the lesson

    b. reinforcement of student behavior

    c. maintaining composure

    d. concept application

    e. concept classification

3. I-STEP participants who taught singly during practice teaching were rated significantly more effective than the "no student teaching" group and the "traditional solo" group in the following areas:

    a. ability to recognize and reward acceptable pupil behavior.

b. ability to maintain composure when confronted with unusual or unexpected classroom situations.

This group was also rated significantly higher than the traditional solo group in two additional areas:

a. extent of student involvement during the lesson

b. degree to which class was aided in proper classification of the concept(s) being taught.

In no category were I-STEP solo student teachers rated significantly higher than their I-STEP team counterparts.

4. The I-STEP students who taught as teams were rated significantly higher than all of the solo groups in the category where pupils were given opportunity to actually apply the concept of the lesson.

In every category where significant differences were reported, the team student teachers were accorded the highest mean ratings.

Areas in which this group was significantly higher than the "no student teaching" group and the "traditional solo" group, but not the I-STEP solo group, were:

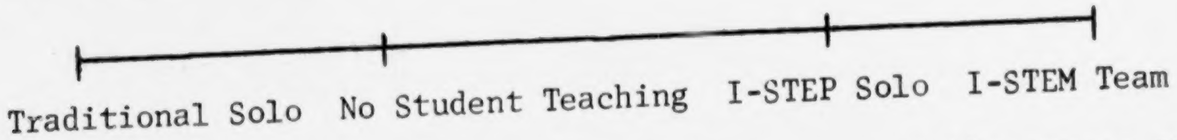
a. reinforcement of student behavior

b. maintaining composure

c. concept classification activities

With regard to getting pupils involved in the learning exercises of the particular lesson, I-STEP team student teachers were rated significantly higher than those practice teachers who came through the traditional program.

The overall rankings of Phase I, would place the four student teaching groups on the following continuum, with the least effective at left progressing to the most effective on the right.


Traditional Solo
No Student Teaching
I-STEP Solo
I-STEM Team

There were no significant differences in any of the groups or in any of the categories of Phase I in regard to the sex factor. That is, men and women were rated almost equally within the particular student teaching group in the various ratings included for the ten categories in this phase of the report.

CHAPTER IV

INTERACTION ANALYSIS OF VIDEO-TAPED LESSONS FROM PRE AND POST STUDENT TEACHING EPISODES

Introduction

Utilization of the Verbal Interaction Category System (VICS) in the analysis of the video-taped lessons reported in Chapter III provided comparison data in the following areas:

1. Prolonged teacher initiated talk
2. Teacher talk followed by teacher talk
3. Teacher talk followed by pupil talk
4. Teacher accepting behavior
5. Teacher rejecting behavior
6. Pupil talk followed by teacher talk
7. Pupil talk followed by pupil talk
8. Pupil response or initiated talk after either teacher or another pupil
9. Silence or confusion

Phase II of the study indicates the type of classroom interaction present in the pre and post video-taped student teaching lessons. Trainees in each group (I--No student teaching; II--Conventional student teaching experience; III--I-STEP solo student teaching; IV--I-STEP team student teaching) were recorded at the beginning of the practice teaching experience and again at the termination of this seasoning. The comparisons consider the relationship between verbal involvement on the part of teacher and pupil, and the interaction sequence. The video-tapes were randomized and then viewed independently by each of three judges. The judges were unacquainted with which student teachers were in the respective groups, and were not given information concerning pre and post student teaching episodes.

Following collection of the tallied information (See Appendix B for the matrix forms) the pretest data from each of the four groups were subjected to an analysis of variance, after which, the means were adjusted for existing differences. Then, using the pretest as the covariate, the data from the post-test were processed by an analysis of covariance to determine whether significant differences between groups or between male and female participants were present in the areas included in the study.

The sources tested for significant differences in the analysis of covariance tables contained in this chapter include:

1. The four groups
2. Sexes
3. Sexes within groups
4. Judges
5. Judges X Groups
6. Judges X Sex
7. Sex X Judge X Group

Analysis of Data

The tables which follow contain the means and F ratios for each of the nine VICS categories compared. Associated with every major table, where there were significant differences at the .05 level, are accompanying tables containing the means for the sources in which the differences occurred.

The first category connotes those observed situations where teachers occupied the lesson time by prolonged talking. During this time the teacher is presenting facts or opinions to the class, either in the form of short statements or in the form of extended lecture. Explanation and orientation also fall into this category. The teacher may also be giving directions to the class during this period.

The analysis in connection with this data was to determine if students with different bases for entering practice teaching (as indicated by the four groups) would demonstrate any significant differences in the amount of time they initiated and prolonged the presentation without opportunity for pupil participation or interaction.

Table XI includes an F-ratio between group means which is significant at the .05 level. The full discussion of this difference is in connection with Table XI-A. The only other interaction which proved significant in this category was between the judges. This difference occurred when one judge's ratings were consistently higher than the other two. However, ranking the ratings of the four groups, by judges, indicated that the differences were not in the relative order of the groups. That is, where differences were reported, they were the same by all three judges. The only difference was that one judge consistently recorded higher scores on the specific category even though he rated the groups in the same position as the other judges. Inasmuch as this difference shows up in several of the categories, but does not affect the rank order of the groups, no further reference will be made to judge differences.

The other interactions, identified under the "source" column, were not significant in terms of teacher initiated and sustained talking in the lesson presentations evaluated. Apparently, males and females tend to function similarly in regard to the variable reported in this table since no sex differences were observed.

TABLE XI

ANALYSIS OF COVARIANCE FOR THE PROLONGED TEACHER INITIATED TALK POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.869	3.90	<.05
Sex	1	0.001	0.00	NS
Group X Sex	3	0.252	1.13	NS
Error 1	39	0.222		
Judges	2	0.098	7.30	<.01
Group X Judges	6	0.008	0.61	NS
Sex X Judges	2	0.017	1.25	NS
Group X Sex X Judges	6	0.012	0.91	NS
Error 2	79	0.013		

To determine which groups generated the difference reported in Table XI, the following group means (Table XI-A) were subjected to a Newman-Keuls Sequential Range Test. The .05 level of significance was observed between trainees in I-STEP teams and I-STEP solo; I-STEP teams and traditional solo; I-STEP teams and no student teaching. No significant difference was reported between any of the other group interactions.

The results suggest that the student teachers who taught as teams utilized significantly less time talking to their students than did members of any other student teaching group.

TABLE XI-A

GROUP MEANS ON TEACHER INITIATED AND PROLONGED TALK

I No Student Teaching	II Traditional Solo	III I-STEP Solo	IV I-STEP Team
0.890	0.821	0.959	0.586

The second category in the VICS analysis provides comparisons between the four groups and between male and female participants in the area of teacher talk, followed by teacher talk. This is the usual situation when a teacher asks a question or calls for a response and then ignores the students and proceeds to answer his own question or provides an appropriate response himself.

Table XII includes the "F" ratios derived from the means of the four groups as reported by the three judges. The difference recorded in this category occurred within the groups between sexes. The specific means involved are presented in Table XII-A.

For the other interactions tested, only judged differences were significant. Inasmuch as these ratings did not influence the order in which groups were ranked, no further consideration will be given to them.

TABLE XII

ANALYSIS OF COVARIANCE FOR THE TEACHER TALK FOLLOWED BY TEACHER TALK POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.001	0.32	NS
Sex	1	0.001	0.15	NS
Group X Sex	3	0.014	3.15	<.05
Error 1	39	0.004		
Judges	2	0.011	12.38	<.01
Group X Judges	6	0.002	1.74	NS
Sex X Judges	2	0.000	0.03	NS
Group X Sex X Judges	6	0.002	1.92	NS
Error 2	79	0.001		

The male student teachers from the traditional training program (Group II) had less tendency to speak and then respond to their own questions or comments than did any other males in the study. This difference, between males of Group II and the males of each of the other three groups, was significant at the .05 level.

The same level of significance was evident between the males of Group II and the females in that group.

No differences were reported between females in the various groups.

The means for these comparisons constitute Table XII-A.

Table XII-A

GROUP AND SEX MEANS FOR TEACHER-TEACHER TALK

	I	II	III	IV	Average
Male	0.123	0.064	0.111	0.116	0.103
Female	0.099	0.129	0.104	0.098	0.108
Average	0.111	0.096	0.108	0.107	0.106

Another classification derived from the VICS analysis of the video-taped lessons compared the four groups and the sexes in terms of teacher talk followed by pupil talk. The pupil response may be predictable or unpredictable. A predictable response may follow a narrow question from the teacher, and would tend to be a relatively short reply. Unpredictable or irrelevant responses are usually triggered by broad questions.

Table XIII data for the interactions compared in this category attest that the only significant differences occurred between the judges.

It therefore appears that the type of pre-student teaching preparation (as represented by the four groups) is not significant in terms of providing means for eliciting student responses to teacher comments or questions.

TABLE XIII

ANALYSIS OF COVARIANCE FOR THE TEACHER TALK FOLLOWED BY PUPIL TALK POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.031	1.93	NS
Sex	1	0.003	0.20	NS
Group X Sex	3	0.009	0.55	NS
Error 1	39	0.016		
Judges	2	0.014	7.39	$<.01$
Group X Judges	6	0.002	0.99	NS
Sex X Judges	2	0.002	0.86	NS
Group X Sex X Judges	6	0.003	1.54	NS
Error 2	79	0.002		

One area of comparison provided by the VICS analysis shows how teachers recognize and respond to student ideas and behavior which facilitates rather than hinders the lesson presentation.

Table XIV contains the "F" ratios for the interactions in this category. The main difference, significant at the .05 level, is between the sexes. The difference between judges did not reflect any difference in the ratings of males and females. That is, all judges placed them in the same relative position, with one judge submitting higher means than the other two.

TABLE XIV

ANALYSIS OF COVARIANCE FOR THE TEACHER ACCEPTING BEHAVIOR POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.000	0.00	NS
Sex	1	0.046	7.24	<.05
Group X Sex	3	0.001	0.15	NS
Error 1	39	0.006		
Judges	2	0.003	4.34	<.05
Group X Judges	6	0.002	2.41	NS
Sex X Judges	2	0.001	1.28	NS
Group X Sex X Judges	6	0.000	0.60	NS
Error 2	79	0.001		

It appears that the sex factor was more significant in producing behavior which rewards appropriate student participation than any of the four student teaching groupings arranged for in this study. The men were more effective in offering praise and encouraging their students to participate than were the women included in the experimental design from which these data were gathered.

The means, by sex, for all participants are contained in Table XIV-A. There were no significant differences between groups, but an examination of the means for males and females within groups emphasizes the higher ratings received by the males.

TABLE XIV-A

GROUP AND SEX MEANS FOR TEACHER ACCEPTING BEHAVIOR

	I	II	III	IV	Average
Male	0.055	0.054	0.046	0.060	0.054
Female	0.017	0.014	0.024	0.013	0.017
Average	0.036	0.034	0.035	0.037	0.036

In addition to revealing how teachers recognize and react to favorable student participation, the VICS analysis also indicates the frequency and extent of teacher behavior which is rejecting in nature. Such instances are evident when the teacher criticizes, ignores or discourages the ideas or behavior of pupils. The rejection may be evident in the tone of voice; the inflection of directed comments; the facial expression; as well as in other gestures or mannerisms exhibited by the teacher.

The interactions shown in Table XV disclose that there were significant differences between the sexes and the judges concerning the category where teachers reject student ideas or behavior. The other interactions were non-significant.

TABLE XV

ANALYSIS OF COVARIANCE FOR THE TEACHER REJECTING BEHAVIOR POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.000	0.98	NS
Sex	1	0.002	5.45	<.05
Group X Sex	3	0.000	0.86	NS
Error 1	39	0.000		
Judges	2	0.003	11.14	<.01
Group X Judges	6	0.000	0.49	NS
Sex X Judges	2	0.002	7.96	<.01
Group X Sex X Judges	6	0.000	0.79	NS
Error 2	79	0.000		

The means (Table XV-A) are higher, overall, for the males than for the females.

The composite ratings indicate a significant difference between men and women with the conclusion that the males in this study exhibited more rejecting behavior than did their female counterparts. (It will be recalled that the men were also more accepting.) It appears that the women student teachers reacted less overtly than the men to classroom situations in which pupils might have been recognized for either positive or negative behavior patterns.

Interaction analysis of classroom teaching episodes also denotes the direction of responses and verbal exchanges which occur

TABLE XV-A

JUDGE AND SEX MEANS FOR TEACHER REJECTING BEHAVIOR

	I	II	III	Average
Males	0.023	0.025	0.032	0.027
Females	0.005	0.005	0.009	0.006
Average	0.014	0.015	0.022	0.017

during the lesson. That is, the tallies provide an indication of whether pupils generate exchanges among themselves or whether the main dialogue is between teacher and student; back to teacher again.

One of the categories tested in this study related to the amount of pupil talk followed by teacher talk. For the four groups compared, no significant differences were observed in this specific type of classroom behavior. Apparently, neither the sex factor, nor the particular student teaching experience were influential in bringing about any demonstrable differences with respect to the frequency or duration of teacher-talk which followed verbal participation by students.

Table XVI shows no significant differences in any of the interactions under the source column, except between the judges. This difference resulted when one judge recorded more frequent responses in the VICS matrix category of pupil talk followed by teacher talk than did the other two evaluators.

TABLE XVI

ANALYSIS OF COVARIANCE FOR THE PUPIL TALK FOLLOWED BY TEACHER TALK POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.007	0.53	NS
Sex	1	0.051	3.87	NS
Group X Sex	3	0.011	0.84	NS
Error 1	39	0.013		
Judges	2	0.036	17.35	<.01
Group X Judges	6	0.001	0.66	NS
Sex X Judges	2	0.003	1.40	NS
Group X Sex X Judges	6	0.003	1.35	NS
Error 2	79	0.002		

Moving to the next category in the VICS analysis, significant differences were found between the groups and within the sexes in the differences were found between the groups and within the sexes in the groups with regard to the pupil-pupil interaction evident in the videotaped lessons. Table XVII shows the "F" ratios for these differences. The other interactions listed under the "sources" column proved to be non-significant.

Considering pupil-pupil interaction, Group II males (traditional solo) were able to bring about significantly more of it than were the men in any of the other three groups. Each of the comparisons between men of Group II and males of the other groups were significant at the .05 level. Table XVII-A contains the means by sex and group from which the above finding was obtained.

On the other hand, pupils from the classes taught by females from I-STEP teams demonstrated significantly less interaction among themselves than did any other public school students taught by female practice teachers included in the study. The means reflecting this situation are also presented in Table XVII-A.

In the overall comparisons, for interactions in the various sources listed in Table XVII, student teachers who progressed through the traditional preparation program (whether they student taught or not) taught lessons in which there was more pupil talk followed by additional pupil talk than was evidenced in the video-taped lessons of practice teachers in either I-STEP group.

TABLE XVII

ANALYSIS OF COVARIANCE FOR THE PUPIL TALK FOLLOWED BY PUPIL TALK POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.022	6.70	$<.01$
Sex	1	0.006	1.86	NS
Group X Sex	3	0.018	5.61	$<.01$
Error 1	39	0.003		
Judges	2	0.003	2.30	NS
Group X Judges	6	0.001	0.99	NS
Sex X Judges	2	0.001	0.47	NS
Group X Sex X Judges	6	0.001	0.61	NS
Error 2	79	0.001		

Not only did Group II males have significantly greater pupil-pupil interactions than did the males from other groups, but the difference between Group II males and Group II females was also significant at the .05 level. (Table XVII-A)

Females with no practicum experience (Group I) provoked significantly more pupil-pupil interaction than did males from the same group or females from any other group.

TABLE XVII-A

GROUP AND SEX MEANS FROM PUPIL-PUPIL INTERACTIONS

	I	II	III	IV	Average
Males	0.021	0.097	0.006	0.011	0.034
Females	0.061	0.020	0.009	0.002	0.023
Average	0.041	0.059	0.008	0.006	0.029

The only triple interaction (Group X Sex X Judge) that proved significant (.01 level) occurred in the next category. This analysis considered all pupil responses or initiated talk which followed verbal involvement of either the teacher or another student. As shown in Table XVIII, there were no significant differences, in this category, between groups or between male and female participants. However, the interaction that compared the sexes within each group approached a significant level (.10 recorded under column "P").

TABLE XVIII

ANALYSIS OF COVARIANCE FOR THE PUPIL RESPONSE OR INITIATED TALK POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.104	1.01	NS
Sex	1	0.290	2.84	NS
Group X Sex	3	0.302	2.97	<.10
Error 1	39	0.102		
Judges	2	0.010	2.45	NS
Group X Judges	6	0.006	1.52	NS
Sex X Judges	2	0.002	0.59	NS
Group X Sex X Judges	6	0.013	3.40	<.01
Error 2	79	0.004		

Means for the cells of the triple interaction which compares judges ratings of male and female trainees in each of the four groups are presented in Table XVIII-A.

Significant differences (.01 level) were recorded between the men and women in two of the groups. I-STEP women who soloed (Group III) in student teaching had a greater frequency of pupil responses or initiated talk than the I-STEP men who student taught single. For Group II (traditional solo), it was the men who had significantly higher means in this category of classroom interaction. The specific means for the above differences are contained in Table XVIII-A.

Comparing the males from the four groups, the data contains significant differences between those with traditional program preparation (Group II) and each of the other three training experiences. Ranking them from high to low (most to least classroom interaction of pupils) places the traditional solo male student teachers at the top, followed in order by those from the I-STEP teams; no student teaching; I-STEP solo trainees. (See Table XVIII-A).

TABLE XVIII-A

PUPIL RESPONSE MEANS BY GROUP, SEX, AND JUDGE

	I		II		III		IV		Average
	Male	Female	Male	Female	Male	Female	Male	Female	
1	0.171	0.137	0.517	0.123	0.108	0.235	0.215	0.258	0.220
Judge 2	0.222	0.132	0.500	0.184	0.075	0.258	0.350	0.263	0.248
3	0.201	0.158	0.478	0.191	0.181	0.246	0.218	0.283	0.245
Average	0.198	0.142	0.503	0.166	0.121	0.246	0.261	0.268	0.238

The final category in the VICS interaction analysis, on which comparisons were made from the data on the video-taped lessons, combines for each participant, all periods of silence and confusion which were evident to the judges. Silence is tallied whenever there are pauses or periods of silence during the time of verbal classroom exchange. Long periods of silence, for instance, when the class is engaged in seat work or silent reading, are of a different nature because these silences are not really a part of verbal interaction.

Tabulations under "confusion" result from considerable noise which disrupts planned activities.

Table XIX shows a significant difference between groups and between the sexes in terms of the amount of time occupied by silence or confusion during the pre and post student teaching lessons taught by trainees in the four different groups.

TABLE XIX

ANALYSIS OF COVARIANCE FOR THE SILENCE AND CONFUSION POST TEST WITH THE PRETEST USED AS THE COVARIATE

Source	df	Mean Square	F	P
Groups	3	0.586	4.23	<.05
Sex	1	0.621	5.42	<.05
Group X Sex	3	0.554	3.85	<.05
Error 1	39	0.140		
Judges	2	0.032	3.92	<.05
Group X Judges	6	0.009	1.04	NS
Sex X Judges	2	0.006	0.73	NS
Group X Sex X Judges	6	0.010	1.17	NS
Error 2	79	0.008		

In order to identify the particular source of the differences reported in Table XIX, the appropriate means were subjected to a Newman-Keuls Sequential Range Test with the following consequences:

1. Males within each group, and therefore for the total

experiment were judged to have less silence and confusion within their lessons than were their female counterparts.

2. I-STEP Groups (both team and solo) had less silence and confusion than either of the traditional groups (solo and no student teaching).

TABLE XIX-A

GROUP AND SEX MEANS FOR SILENCE AND CONFUSION

	I	II	III	IV	Average
Males	0.214	0.294	0.198	0.153	0.215
Females	0.462	0.400	0.275	0.252	0.347
Average	0.338	0.347	0.237	0.203	0.281

SUMMARY

The video-tapes, secured from the lessons taught by student teachers in each of the four groups (I--No student teaching; II--Traditional solo; III--I-STEP solo; IV--I-STEP team) were analyzed by three independent judges on a matrix of the Verbal Interaction Category System (VICS). The sequence of events during the learning session were identified and tallied into the following cells:

1. Prolonged teacher initiated talk
2. Teacher talk followed by teacher talk
3. Teacher talk followed by pupil talk

4. Teacher accepting behavior
5. Teacher rejecting behavior
6. Pupil talk followed by teacher talk
7. Pupil talk followed by pupil talk
8. Pupil response of initiated talk after either teacher or another pupil
9. Silence of Confusion

Comparisons were made between the four training groups and between male and female participants as to the type of interaction generated in the particular lessons taught. These comparisons came from an analysis of covariance. The data were tested for significant differences in each category listed above.

The following results were obtained for the interaction analysis (Phase II) of the study being reported. Group differences are listed first; then areas wherein the sexes demonstrated significantly different performances are noted.

1. I-STEP team student teachers were judged to have had significantly less observable interaction in their videotaped lessons for the categories listed below than the other groups specified:
    a. less teacher initiated and prolonged talk than any of the other three groups in the study.
    b. less pupil-pupil interaction than the traditional solo group.

   c. less silence and confusion than either the traditional solo group or the group with no student teaching.

2. I-STEP solo student teachers were rated significantly different in three categories:
   a. less pupil-pupil interaction than the traditional solo group.
   b. less silence and confusion than the traditional solo group and the non-student teaching group.
   c. greater in teacher initiated and prolonged talk than the I-STEP team student teachers.
3. Traditional solo student teachers were instrumental in producing significantly different interactions, as compared with the other groups, as follows:
   a. greater than the I-STEP team group in teacher initiated and prolonged talk.
   b. greater than all other groups in the amount of pupil-pupil interaction.
   c. greater in terms of the silence and confusion elements present in the lessons than either I-STEP group.
4. The group that did not participate in practice teaching had significantly higher means than the I-STEP team group in the area of teacher initiated and prolonged talk.
5. Significant differences were recorded between the sexes in several of the categories compared in the study:

a. males with traditional solo student teaching had significantly less teacher talk followed by additional teacher talk than the males of any other group.

b. males of all groups demonstrated significantly greater accepting behavior than did the females.

c. males of all groups also exhibited greater rejecting behavior concerning their pupils than did the females.

d. males had significantly less periods of silence and confusion during their lessons than did the females.

e. men from the traditional solo group had significantly more pupil initiated talk than the females in this same group.

f. females with no student teaching had more pupil-pupil interaction than the males of that same group or the females of any other group.

g. males from the traditional solo experience provoked greater pupil-pupil interaction than the females of that group or the men in any of the other groups.

CHAPTER V

PERCEIVED GROWTH RATINGS OF STUDENT TEACHERS VS COOPERATING TEACHERS, IN THE AREAS OF TEACHING KNOWLEDGE, TEACHING SKILLS, AND ATTITUDES TOWARD LEARNING

Introduction

At the conclusion of the practice teaching experience, student teachers in Groups II (Traditional solo); III (I-STEP solo; and IV (I-STEP team), along with their respective cooperating teachers responded to several items on three different rating sheets. (See the appendix for copies of the instruments employed.) The items called for an indication of how the students (and their teachers) perceived individual growth as a result of the practice teaching duration in the categories of: (1) knowledge about teaching; (2) teaching skills; (3) attitudes toward teaching.

Each item (60 in all) was rated on a five point scale from "deteriorated greatly" through "no change" to "improved greatly."

Group I did not student teach and consequently had no cooperating teachers. No data were gathered from them on this phase of the experiment.

Rating Sheet Analysis

The data obtained from the rating sheets were subjected to an analysis of variance to determine whether any significant differences were reported between the student self ratings, among the three groups, and the corresponding cooperating teacher ratings. A further breakdown compared males and females for recorded differences.

The various interactions of these ratings (student teacher perceived growth vs cooperating teacher perception of the trainee's growth on the same items) are presented and discussed in connection with the following tables. The three areas rated for this portion of the study are treated separately.

A. Knowledge About Teaching

Table XX contains the gross data for the interactions tested in the analysis of variance pitting student teacher ratings against those of the cooperating teachers. A quick glance at the significance column, "P" reveals no significant differences at the .05 level among the groups or between males and females in this portion of the study. The supplementary tables to Table XX list the means of the respective sources that were tested for possible differences. While none of these differences were significant, some trends seem to emerge that may bear potential for additional experimentation.

The following tables contain the mean scores for the various sources being compared.

Table XX-A lists the means for the three groups rated by student teachers and cooperating teachers.

It can be seen that the overall mean (self rating and cooperating teacher rating combined), though non-significant, slightly favored the trainees who practice taught in teams.

TABLE XX

ANALYSIS OF VARIANCE FOR KNOWLEDGE ITEMS
Overall Mean = 87.76

Source	D.F.	Mean Square	F	P
Groups	2	176.89	0.99	NS
Sex	1	231.13	1.30	NS
Group X Sex	2	158.00	0.89	NS
Error 1	30			
Rater	1	210.13	1.51	NS
Group X Rater	2	3.17	0.02	NS
Sex X Rater	1	506.68	3.63	$<.10$
Group X Sex X Rater	2	110.72	0.79	NS
Error 2	30	139.56		

TABLE XX-A

GROUP MEANS FOR KNOWLEDGE ITEMS

Group	Mean
Group II (Traditional Solo)	85.88
Group III (I-STEP Solo)	86.54
Group IV (I-STEP Team)	90.88

In Table XX-B, the combined ratings are presented for males and females, with the female mean somewhat higher.

TABLE XX-B

SEX MEANS FOR KNOWLEDGE ITEMS

Sex	Mean
Male	85.97
Female	89.56

An interaction of Group and Sex ratings is contained in Table XX-C. This provides a comparison of male and female means between the groups.

TABLE XX-C

GROUP AND SEX MEANS FOR KNOWLEDGE ITEMS
GROUP X SEX

	Group II	Group III	Group IV	Average
Male	86.92	82.58	88.42	85.97
Female	84.83	90.50	93.33	89.56
Average	85.88	86.54	90.88	87.76

Table XX-C shows a higher mean for the males of the Traditional Solo males than for the females of that group, while in Groups III and IV (Both I-STEP oriented), the females were given the ratings of a higher nature.

In comparing the means for all self ratings (male and female) with those of all cooperating teachers, it is evident that, on the average, students tended to rate their growth in knowledge about teaching slightly higher than did the public school teachers. These data are contained in Table XX-D.

TABLE XX-D

RATER MEANS FOR KNOWLEDG ITEMS

Rater	Mean
Self	89.47
Cooperating Teacher	86.06

When looking at the means generated by the raters (self and cooperating teacher combined) for the three groups, it is again evident that student self ratings were consistently higher. These data are summarized in Table XX-E.

TABLE XX-E

GROUP AND RATER MEANS FOR KNOWLEDGE ITEMS
GROUP X RATER

	Group II	Group III	Group IV	Average
Self	88.00	88.00	92.42	89.47
Cooperating Teacher	83.75	85.08	89.33	86.06
Average	85.88	86.54	90.88	87.76

The only category of interaction concerning knowledge about teaching which approached significance (.10 level) was that in which sex (male and female) and rater (self and cooperating teacher) were factors.

The tendency here shows that the males rated themselves higher than did their cooperating teachers, while the reverse was true for the females. The computed means indicating this relationship are in the body of Table XX-F.

TABLE XX-F

SEX AND RATER MEANS FOR KNOWLEDGE ITEMS
SEX X RATER

	Self	Cooperating Teacher	Average
Male	90.33	81.61	85.97
Female	88.61	90.50	89.56
Average	89.47	86.06	87.76

A three-way comparison of interaction between the factors of Sex X Group X Rater provides means indicating that in each of the three groups, male self-ratings were higher than cooperating teacher ratings, while only in Group IV (I-STEP team) were female self-ratings higher than those of their cooperating teachers. These means are in Table XX-G.

TABLE XX-G

SEX, GROUP AND RATER MEANS FOR KNOWLEDGE ITEMS SEX X GROUP X RATER

	Group II	Group III	Group IV	Average
Male-Self	94.00	86.33	90.66	90.33
Male-Cooperating Teacher	79.83	78.83	86.17	81.61
Female-Self	82.00	89.67	94.17	88.61
Female-Cooperating Teacher	87.67	91.33	92.50	90.50
Average	85.88	86.54	90.88	87.76

Even though no significant differences were reported between the groups with regard to perceived growth in the area of knowledge about teaching as a result of the practice teaching experience, the data do reveal a rather consistent pattern with respect to the various means being compared. For one thing, the males in the experiment tended to reflect the idea that they had made more growth than their cooperating teachers apparently felt they had demonstrated. On the other hand, the females were more conservative in their estimation of growth than were the cooperating public school teachers to whom they were assigned.

A second trend seems to be that in the various categories, the means for students who taught in teams were higher (and therefore more favorable in terms of perceived growth) than those of either solo group.

Ranking the three groups, on the basis of the data relating to knowledge about teaching, the traditional solo student teachers had the lowest means, with I-STEP solo students and then I-STEP team trainees following in ascending order.

B. Teaching Skills

The second rating sheet dealt with perceived growth in certain teaching skills. The comparisons which follow are from student teacher ratings and those of their cooperating teachers. They indicate the degree to which certain skills were assimilated during the practice teaching duration.

Groups II (Traditional solo); III (I-STEP solo); and IV (I-STEP team) are included in the analysis which follows. Since there were no cooperating teachers involved with Group I (No student teaching) a comparison of ratings for this group was not possible.

The item on the rating sheet called for scaler responses having a five point variation. Analysis was made to determine whether differences were recorded between groups and also between male and female participants.

Table XXI shows only one significant interaction (.05 level) in the analysis of perceived growth relating to teaching skills. This difference occurred between the sex of the students being rated and the individuals making the rating. The specific differences will be considered in Table XXI-F.

Although the other interactions represented in Table XXI were not significant at the .05 level of confidence, the means involved will be presented in a separate table for each source listed. This provides an opportunity to consider possible trends that may bear further research at a later time.

TABLE XXI

ANALYSIS OF VARIANCE FOR SKILLS:
Overall mean = 68.13

Source	D.F.	Mean Square	F	P
Group	2	328.88	2.72	<.10
Sex	1	78.13	0.65	NS
Group X Sex	2	99.29	0.82	NS
Error 1	30	121.00		
Rater	1	0.68	0.01	NS
Group X Rater	2	10.51	0.09	NS
Sex X Rater	1	690.68	6.24	<.05
Group X Sex X Rater	2	57.26	0.52	NS
Error 2	30	110.69		

The means for the three groups being compared are contained in Table XXI-A. These means are derived from a combination of the student teacher and cooperating teacher ratings.

Table XXI-B indicates only a slight difference in the overall rating between the sexes. The females were afforded the more favorable mean.

TABLE XXI-A

GROUP MEANS FOR SKILL ITEMS

Group	Mean
Group II (Traditional Solo)	67.75
Group III (I-STEP Solo)	64.63
Group IV (I-STEP Team)	72.00

TABLE XXI-B

SEX MEANS FOR SKILL ITEMS

Sex	Mean
Male	67.08
Female	69.17

The next table (XXXI-C) allows for comparison of the sexes within and between the three groups. While the differences recorded did not prove significant at the .05 level, the largest separation of means occurred between Group IV (I-STEP team) and Group III (I-STEP solo), with the higher ratings going to those who student taught as members of teams.

TABLE XXI-C

SEX AND GROUP MEANS FOR SKILL ITEMS

	II Group	III Group	IV Group	Average
Male	68.42	61.33	71.50	67.08
Female	67.08	67.92	72.50	69.17
Average	67.75	64.63	72.00	68.13

In the compiled ratings of the student teachers (both male and female) compared with those of all cooperating teachers, Table XXI-D denotes almost identical means. That is, in relation to perceived growth in teaching skills, the student (as a group) viewed their increased ability in essentially the same manner as did the public school teacher who supervised their classroom endeavors.

TABLE XXI-D

RATER MEANS FOR SKILL ITEMS
RATER

	Mean
Self	68.22
Cooperating Teacher	68.03

The comparison of Group X Sex (Table XXI-C) pointed out the same trend as is found in the next table. It is evidenced by the means recorded in Table XXI-E that the biggest differences were between Group IV student teachers (I-STEP team), who received the highest ratings, and the other I-STEP students (Group III, who soloed). The table reflects that student teachers and cooperating teachers both made ratings suggesting that the team student teachers gave evidence of potentially greater growth in teaching skills during the practice teaching experience.

TABLE XXI-E

RATER AND GROUP MEANS FOR SKILL ITEMS
GROUP X RATER

	Group II	Group III	Group IV	Average
Self	68.25	67.08	71.33	68.22
Cooperating Teacher	67.25	64.17	72.67	68.03
Average	67.75	64.63	72.00	68.13

In the only significant interaction (.05 level) revealed by the ratings regarding growth in teaching skills, the data of Table XXI-F provide the means from male and female; self and cooperating teacher evaluations. Males rated themselves significantly higher in the acquisition of teaching skills than did their female counterparts rate themselves. On the other hand, the women were rated significantly higher by the cooperating teachers than were the men in the study. Also, female self ratings were significantly lower than those given the women by their cooperating teachers, while the males gave self ratings much greater than their respective teachers perceived they should have had.

TABLE XXI-F

SEX AND RATER MEANS FOR SKILL ITEMS
SEX X RATER

	Self	Cooperating Teacher	Average
Male	70.28	63.89	67.08
Female	66.17	72.17	69.17
Average	68.22	68.03	68.13

The final table in this section (Table XXI-G) connotes the three way interaction between Group, Sex, and the Rater. This breakdown of means shows that there is consistency in the ratings which (while non-significant) place Group IV (I-STEP team) in the highest ranking, with the largest separation again being between that group and those I-STEP students who had solo experiences in practice teaching. Within groups, it is evident that the greatest discrepancy in self and cooperating teacher perception of growth in teaching skills occurred with the males of Group II (Traditional solo). The difference between the means of self (73.50) and cooperating teacher (63.33) is much greater than the respective ratings for students who teamed--Group IV (72.33 and 70.67).

As noted in Table XXI-F, the male and female ratings are inverse to those of their cooperating teachers.

TABLE XXI-G

GROUP, SEX AND RATER MEANS FOR SKILL ITEMS
GROUP X SEX X RATER

	Group II	Group III	Group IV	Average
Male-Self	73.50	65.00	72.33	70.28
Male-Cooperating Teacher	63.33	57.67	70.67	63.89
Female-Self	63.00	65.17	70.33	66.17
Female--Cooperating teacher	71.17	70.67	74.67	72.17
Average	67.75	64.63	72.00	68.13

C. Attitudes Toward Teaching

A third rating sheet was employed in this phase of the study with an attempt to determine if there were differences in the effect a particular student teaching preparation program (i.e., traditional solo, I-STEP solo, I-STEP team) might have on the perception of students and cooperating teachers regarding certain attitudes about the teaching profession and the teacher's role in the classroom.

Responses were made on a five point scale opposite each item on the rating sheet. Student teachers and their cooperating teachers responded, at the conclusion of the practice teaching duration, with an indication of how they each perceived the student teacher's attitudes toward teaching as a career at that time.

The data collected were subjected to an analysis of variance and comparisons made between student ratings and those of the cooperating teachers. Male and female differences were investigated and also those that might exist between the three groups.

The following table summarizes the results of the various interactions tested. (Table XXII)

Each source listed in Table XXII is analyzed in a separate table where the relevant means used in the comparisons are presented for greater detail.

TABLE XXII

ANALYSIS OF VARIANCE FOR ATTITUDES:
Overall mean = 6.178

Source	D.F.	Mean Square	F	P
Group	2	7.93	0.13	NS
Sex	1	6.72	0.11	NS
Group X Sex	2	39.60	0.67	NS
Error 1	30	59.19		
Rater	1	0.22	0.01	NS
Group X Rater	2	16.85	0.56	NS
Sex X Rater	1	102.72	3.39	<.10
Group X Sex X Rater	2	44.18	1.47	NS
Error 2	30	30.33		

There were no significant differences in the data for Table XXII. The three way interaction of Group X Sex X Rater was the only category approaching significance in the ratings on attitudes toward teaching.

Table XXII-A provides a closer look at the means from the three groups included in the study. The computed figures are very close to one another, verifying the non-significant nature of the differences.

TABLE XXII-A

GROUP MEANS FOR ATTITUDE ITEMS

Group	Mean
Group II (Traditional Solo)	62.00
Group III (I-STEP Solo)	61.13
Group IV (I-STEP Team)	62.21

The data comparing ratings given the sexes also show very close averages when ratings of practice teachers and cooperating teachers are combined and considered in a male-female breakdown. Table XXII-B contains the means of the sex factors.

TABLE XXII-B

SEX MEANS FOR ATTITUDE ITEMS

Sex	Mean
Male	62.08
Female	61.47

Considering the factors of Sex and Group, the most notable difference occurs between the males and females of Group II (Traditional solo). The means of the sexes for Group IV (I-STEP team) are almost identical, while only a slight difference is noted in Group III (I-STEP solo). There is a striking uniformity among the means by sex and group as manifest by Table XXII-C.

TABLE XXII-C

SEX AND GROUP MEANS FOR ATTITUDE ITEMS

	Group II	Group III	Group IV	Average
Male	63.75	60.47	62.08	62.08
Female	60.25	61.83	62.21	61.78
Average	62.00	61.13	62.21	61.78

Table XXII-D shows that the means of the ratings from the self evaluations of student teachers is close to that of their corresponding cooperating teachers in terms of attitudes toward teaching developed during practice teaching.

TABLE XXII-D

RATER MEANS FOR ATTITUDE ITEMS

	Mean
Self	61.83
Cooperating Teacher	61.72

The variation among the means of the interactions produced when considering the three groups and the raters (self and cooperating teacher) is very small. Table XXII-E contains the data for these interactions. The greatest difference appears in cooperating teacher ratings of Group III (I-STEP solo) and Group IV (I-STEP team), with the latter mean being larger.

TABLE XXII-E

RATER AND GROUP MEANS FOR ATTITUDE ITEMS

	Group II	Group III	Group IV	Average
Self	62.75	61.42	61.33	61.83
Cooperating Teacher	61.25	60.83	63.08	61.72
Average	62.00	61.13	62.21	61.78

The analysis considering the factors of Sex and Rater likewise generated very little difference in any of the means recorded. However, the tendency (though non-significant) for males to rate themselves higher than the females rate themselves, and for the cooperating teachers to rate the women higher than the men is consistent with the significant differences for these same factors in the acquisition of teaching skills reported in Table XXI-F. The same basic pattern was evident in Table XX-F (teaching knowledge). Table XXII-F, then, allows for mean comparison between male and female along with the rater involved (self and cooperating teacher).

TABLE XXII-F

SEX AND RATER MEANS FOR ATTITUDE ITEMS

	Self	Cooperating Teacher	Average
Male	63.33	60.83	62.08
Female	60.33	62.61	61.47
Average	61.83	61.72	61.78

Comparing the means in Table XXII-G, which come from a three-way interaction between Group, Sex, and Rater; the greatest difference appears in the ratings from the males of Group II (Traditional Solo) where the student teachers tended to perceive their attitudes toward teaching more favorably than their respective cooperating teachers apparently felt they demonstrated in the student teaching atmosphere.

TABLE XXII-G

SEX, GROUP AND RATER MEANS FOR ATTITUDE ITEMS

	Group II	Group III	Group IV	Average
Male-Self	67.00	62.00	61.00	63.33
Male-Cooperating Teacher	60.50	58.83	63.17	60.83
Female-Self	58.50	60.83	61.67	60.33
Female-Cooperating Teacher	62.00	62.83	63.00	62.61
Average	62.00	61.13	62.21	61.78

SUMMARY

Ratings of perceived growth during practice teaching were obtained from student teachers and their respective cooperating teachers in three areas: (1) knowledge about teaching; (2) teaching skills; (3) attitudes toward teaching.

Sixty items were included on the rating sheets, each on a five point scale.

Thirty-six trainees were equally divided according to sex; separated into three groups and randomly assigned to different student teaching experiences: (1) Traditional teacher preparation sequence in a solo practice arrangement; (2) Individualized Secondary Teacher Education Program (I-STEP) on a solo training basis; (3) I-STEP background with team student teaching assignments.

The null hypothesis stated that there would be no differences between the sexes or between the student groups in relation to the perceived growth in the three specified areas as a result of the particular preparation for and experience in student teaching.

Results of the comparative ratings which produced significant differences, and for which an alternate hypothesis was accepted in place of the null hypothesis tested, are listed for each of the three categories.

1. Knowledge of teaching. No significant differences reported. Trend was for males to rate themselves higher than did their cooperating teachers, while females were consistently lower in self-ratings

than was reflected by their cooperating public school teachers.

2. Teaching skills. Significant at the .05 level were differences in perceived growth in teaching skills by male and female participants and their cooperating teachers. That is, the males rated themselves significantly higher in the acquisition of skills associated with teaching than did their cooperating teachers. Counter to this, cooperating teacher ratings of the female student teachers were significantly higher than corresponding self-ratings by the women.

Combined ratings for men (self and cooperating teacher) were also higher than comparable ratings for the women in the three groups.

There were no differences in the perceived growth in this category between the three groups. The type of training and practice experience apparently had little effect on producing significant differences.

3. Attitudes about teaching. No significant differences were recorded between the different student teaching groups or between male and female participants in terms of their perceived attitudes toward the teaching profession.

Apparently, the type of preparation for student teaching (traditional or I-STEP), and the nature of the assignment (solo or team), have no significant effect in contributing to a different perception for the trainees regarding their attitude toward teaching. That is, no one method or practice assignment produced a noticably greater change in the attitudinal categories than another.

Student teachers and cooperating teachers viewed the changes essentially the same in all three groups included in the study.

The most observable differences were between self ratings of males and females, where men tended to rate themselves as having changed more, as a result of their preparation and training, than did their female counterparts.

CHAPTER VI

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

I. THE PROBLEM

The problem was to determine whether significant differences existed between the rated performance of student teachers who practice taught as teams and those who taught singly. The sex factor was also an element of the study, comparing male and female trainees in the above categories, along with the type of teaching preparation program in which they were engaged, (i.e., traditional or experimental).

In the event an experience as a member of a student teaching team were adjudged no less effective (concerning its contribution toward demonstrated ability and professional growth) than the conventional solo arrangement, the following benefits could likely be realized:

A. need for fewer cooperating teachers in the public schools. This would provide an opportunity for training institutions to be more selective of those with whom trainees gain this important exposure to the profession.

B. less time and travel for university supervisory personnel. One stop, possibly closer to the university, would allow for multiple observations where there are more trainees in a single classroom.

C. increase in the number of models to which prospective secondary teachers are exposed. Trainees can observe and critique each other in addition to receiving assistance from the cooperating teacher.

D. potential for more individualized or specialized assistance for pupils in the classes taught by teams. Opportunity could be made available for much more flexibility within the classroom in terms of utilizing time, facilities, resource materials, grouping patterns, and desirable innovative practices.

E. assignment of men and women to the type of practicum that appears best suited to them. One sex may perform more satisfactorily in a team setting than the other.

If any one, or a combination of the above benefits were an outgrowth of a team student teaching experience, it would be well for training institutions to investigate the possibility of incorporating the same into their preparation program.

II. RESEARCH DESIGN

In an effort to determine the feasibility of a team student teaching assignment, the following procedures were employed:

A. All potential secondary social studies student teachers at Brigham Young University, fall semester 1969-70, were divided by sex.

B. From the lists, according to sex, random assignments were made to each of four groups containing twelve members with equal numbers of males and females.

C. The four groups were randomly assigned to a preparation program and a student teaching practicum as follows:

  1. Group I. Traditional sequence of courses and no student teaching.
  2. Group II. Traditional sequence of courses and solo student teaching.
  3. Group III. Individualized Secondary Teacher Education Program (I-STEP) experimental preparation and solo student teaching.
  4. Group IV. I-STEP experimental preparation and team (three member) student teaching.

D. Trainees in each group were randomly assigned to cooperating teachers in the public schools.

E. Each participant was evaluated in three phases:

  1. Phase I. Demonstrated ability to teach.

     Trainees were video-taped at the beginning of the student teaching experience and again at the end. The recordings were made in the public school classrooms where Group II, III, and IV practice teachers were assigned. Group I trainees were taped in a classroom randomly selected from those in which the other groups were involved. These recorded fifteen minute lessons were randomized and independently rated by three judges as to effective utilization of ten elements related to teaching:

a. preassessment
b. use of exemplars
c. participation on other than lowest cognitive level
d. effective student involvement
e. reinforcement of acceptable pupil behavior
f. maintaining classroom poise and composure
g. opportunity for concept application
h. appropriate use of memorization
i. concept classification activities
j. experience leads to problem solving

The data for the pretest episodes were subjected to an analysis of variance. Means were adjusted for differences and the pretest was used as the covariate in analyzing the post test data. Significant differences between groups (and sex) were attributed to the treatment (type of practice teaching assignment and preparation) being examined in this study.

2. Phase II. Classroom interaction skills.

The same video-tapes obtained for Phase I were analyzed for classroom interaction patterns utilizing the Verbal Interaction Category System (VICS). This system provided comparative data between the four groups relating the degree to which the following nine categories were evidenced in the lessons taught by the trainees:

a. prolonged teacher initiated talk
b. teacher talk followed by teacher talk
c. teacher talk followed by pupil talk
d. teacher accepting behavior
e. teacher rejecting behavior
f. pupil talk followed by teacher talk
g. pupil talk followed by pupil talk
h. pupil response or initiated talk after either teacher or another pupil
i. silence or confusion

These data were also subjected to an analysis of covariance, suggesting that observed differences resulted from the particular treatments employed.

3. Phase III. Perceived growth during student teaching.

Ratings from cooperating teachers and from participants were obtained for each trainee at the conclusion of the practice teaching duration. Sixty items were marked on a five point scale reflecting perceived growth in knowledge about teaching, teaching skills, and attitudes toward teaching. Comparisons were made, by an analysis of variance, between individual growth as seen by the trainees and that perceived from the vantage point of the cooperating teachers.

Group I students were excluded from this phase of the study inasmuch as they did not student teach and therefore had no cooperating teachers assigned.

The data in each of the phases were also tested for possible significant differences between male and female participants, within and between the four groups.

III. SUMMARY OF THE FINDINGS

The findings of this experimental investigation are listed according to group and sex differences which tested significant at the .05 level. Findings for each phase follow:

A. Phase I. This consisted of an evaluation pertaining to effective utilization of ten particular instructional techniques as determined from the pre and post student teaching video-taped lessons:

1. Significant group differences:

a. The group that did no student teaching had ratings higher than the traditional solo group in two categories:

(1) degree to which students were involved in the lesson activities.

(2) extent to which student teachers reinforced
acceptable pupil behavior.

b. Group I (no student teaching) did not have significantly higher ratings in any category than either I-STEP group (team or solo).

c. Group II (traditional solo) had the lowest means in each category where significant differences were recorded. These consisted of:
    (1) student involvement in the lesson
    (2) reinforcement of student behavior
    (3) maintaining composure during the lesson
    (4) providing for concept application as part of the lesson
    (5) including concept classification activities in the learning opportunity

d. I-STEP participants who taught singly (Group III) during practice teaching were rated significantly more effective than the "no student teaching" group and the "traditional solo" group in the following areas:
    (1) ability to recognize and reward acceptable pupil behavior
    (2) ability to maintain composure when confronted with unusual or unexpected classroom situations.

e. Group III (I-STEP solo) was rated significantly higher than the traditional solo group in two additional areas:
   (1) extent of student involvement during the lesson
   (2) degree to which the class was aided in proper classification of the concept(s) being taught.

f. In no category were I-STEP solo trainees rated significantly higher than their I-STEP team counterparts.

g. Students whose practicum was experienced as a member of a team (Group IV) had higher means in every category where significant differences were recorded. These included:
   (1) greater opportunity to apply the concept than all other groups
   (2) provision for more suitable concept classification activities than Groups I and II.
   (3) maintaining composure more favorably than Groups I and II
   (4) reinforcing acceptable pupil behavior more effectively than Groups I and II
   (5) involvement of pupils during the lesson to a greater extent than Group II.

In general, the data for this phase of the study suggest that the I-STEP experience seems to equip prospective social studies teachers more adequately for the instructional tasks of successful classroom operation than does the traditional preparation program. In addition, the team opportunity, within I-STEP, appears to contribute to a somewhat better teaching performance than a solo experience from the same background.

2. Sex differences. There were no significant differences within or between the groups for any of the ten categories of Phase I in regard to the sex factor.

B. Phase II. This evaluation was made in nine categories of the VICS matrix for classroom interaction. Comparisons were made on the same pre and post student teaching lessons which were video-taped in public school classrooms for Phase I. A different set of judges was utilized in obtaining the data for this analysis.

1. Significant group differences:

   a. I-STEP team student teachers were judged to have had significantly less observable interaction in their video-taped lessons for the categories listed below than the other groups specified:

      (1) less teacher initiated and prolonged talk than any of the other three groups in the study

(2) less pupil-pupil interaction than the traditional solo group

(3) less silence and confusion than either the traditional solo group or the group with no student teaching.

b. I-STEP solo student teachers were rated significantly different in three categories:

(1) less pupil-pupil interaction than the traditional solo group

(2) less silence and confusion than the traditional solo group and the non student teaching group

(3) greater in teacher initiated and prolonged talk than the I-STEP team student teachers.

c. Traditional solo student teachers (Group II) were instrumental in producing significantly different interactions, as compared with the other groups, as follows:

(1) greater than the I-STEP team group in teacher initiated and prolonged talk

(2) greater than all other groups in the amount of pupil-pupil interaction

(3) greater in terms of the silence and confusion elements present in the lessons than either I-STEP group.

d. The group that did not participate in practice teaching had significantly higher means than the I-STEP team group in the area of teacher initiated and prolonged talk.

The analysis for this phase suggests that involvement in I-STEP prior to practice teaching seems to aid trainees in preparing and presenting lessons which reflect more desirable interaction patterns than is currently evident as a result of the traditional sequence. Thus, whether I-STEP participants engaged in a practicum on a solo basis or as a member of a team, they received more favorable ratings with regard to interaction skills than trainees whose pre student teaching experiences were centered in the current catalog sequence of courses.

The analysis also generally favored the I-STEP teams over their solo counterparts in the same program. While many of the comparisons between these two groups were not significant, the mean scores for the team participants were consistently higher.

2. Significant sex differences.
   a. males with traditional solo student teaching had significantly less teacher talk followed by additional teacher talk than the males of any other group.

b. males of all groups demonstrated significantly greater accepting behavior than did the females.

c. males of all groups also exhibited greater rejecting behavior concerning their pupils than did the females.

d. males had significantly less periods of silence and confusion during their lessons than did the females.

e. men from the traditional solo group had significantly more pupil initiated talk than the females in this same group.

f. females with no student teaching had more pupil-pupil interaction than the males of that same group or the females of any other group.

g. males from the traditional solo experience provoked greater pupil-pupil interaction than the females of that group or the men of any other group.

C. Phase III. This evaluation was obtained from ratings on three questionnaires designed to measure perceived growth in the areas of knowledge about teaching; teaching skills; attitudes toward teaching. The analysis compared student teacher self ratings and those of their respective cooperating teachers. Group I trainees (no student teaching) were excluded from this phase of the study since they were not assigned to cooperating teachers for this experience.

1. Group differences:

   There were no significant differences between the three groups in ratings obtained on the questionnaires. Overall, group by group, cooperating teachers and trainees reflected about the same perception of growth in the three areas measured.

2. Significant sex differences:
   a. with reference to acquisition of teaching skills during the practicum, males rated themselves significantly higher than did their cooperating teachers.
   b. in the same category, teaching skills, cooperating teacher ratings of female trainees were significantly higher than corresponding self ratings by the women.

IV. FINDINGS OF THE NULL HYPOTHESES

Hypothesis 1 stated that "in terms of demonstrated ability to teach, there would be no differences between students who were assigned to student teach in teams and students who practice taught singly."

Based on the findings in Phase I of the study, it was possible to reject the null hypothesis when comparing I-STEP teams with traditional solo groups. There were differences and such differences were found to be statistically significant in the direction of better teaching techniques employed by team student teachers. While the differences were not as great between I-STEP team and I-STEP solo trainees, one categorical difference did favor the team participants.

Hypothesis 2 stated that "cooperating teachers would not rate team student teachers any differently, in terms of perceived teaching ability, than they would those who practice taught singly." An analysis of the data for Phase III revealed that the public school instructors who supervised the training experiences of team and solo student teachers, did not perceive any significant differences between the two groups (team and solo) in terms of their demonstrated teaching ability.

The null hypothesis was not rejected in this portion of the study.

Hypothesis 3 stated that "student teachers who have taught as members of teams will rate their growth in teaching knowledge, skills, and attitudes no differently than those who have student taught singly." An analysis of the data for Phase III showed that there were no significant differences in the self ratings of trainees who gained teaching experience as members of teams and those who soloed. From the findings, it was not possible to reject the null hypothesis.

Hypothesis 4 stated that "classroom interaction, as measured by the Verbal Interaction Category System (VICS), would not be significantly different in lessons taught by student teaching teams and those taught by a solo trainee." Based on the findings of Phase II, the null hypothesis was rejected. Differences in classroom interaction were found between lessons taught by teams and those taught by a single trainee. In the overall analysis of the nine categories tested, practice teachers demonstrated greater ability in establishing and maintaining favorable patterns of interaction if they were a member of a team than if they operated independently. The differences were greater between the I-STEP trainees and those from the traditional program than they were between team and solo students within I-STEP. However, there were some significant differences between the team ratings and those of each solo group, with the judgment favoring the team experience.

Hypothesis 5 stated that "there will be no significant differences in the classroom interaction patterns between classes taught by men and those taught by women." The data from the VICS matrix in Phase II was analyzed and compared for sex differences. The findings of this analysis were grounds for rejecting the null hypothesis. In several categories, the males demonstrated significant differences considered as more conducive to desired classroom interaction than did the females. These differences were independent of I-STEP or traditional preparation for practice teaching.

Hypothesis 6 stated that "there will be no significant differences in the ratings of men (or women) who student teach as members of teaching teams and those who student teach singly, in terms of their ability to teach." An analysis of the data from Phase I suggests that it is not possible to reject the null hypothesis. No significant differences, by sex factor, were recorded in the video-taped episodes included in this phase of the study.

Hypothesis 7 stated that "there is no difference in the rated ability to teach, between the men and women of any of the four groups representing different student teaching preparation and practice experiences." Data for testing this hypothesis were obtained from Phase I video sessions. The evaluations, by analysis of covariance, did not suggest any differences between men and women in any of the groups participating in the study. Therefore, there was no cause to reject the null hypothesis for this element of the report.

V. CONCLUSIONS

From the findings of this study, the following conclusions are drawn:

A. A student teaching practicum in which trainées are organized into teams is at least as effective, and in several ways more effective, in providing cadet teachers with certain desirable teaching behaviors as is a practicum in which each student works singly with a cooperating teacher.

B. The kind of practicum experience (team or solo) produces no measurably different effect upon the perception of teaching growth as viewed by either the trainee or the cooperating teacher.

C. Student teaching preparation which provides experiences such as those in the I-STEP program enables trainees to initiate a greater diversity of classroom interaction patterns than does the traditional sequence of education courses.

D. The sex factor has more influence on the patterns of instructional interaction measured by the Verbal Interaction Category System than the type of student teaching experiences in which trainees are engaged. That is, males and females differ in their interaction skills regardless of whether they student teach singly or in teams, with males demonstrating the more desirable behavior.

E. Men develop greater confidence in their understandings, professional attitudes and teaching competencies during the practicum experience than do their female counterparts. This conclusion is drawn from the findings that male participants perceive more growth in their own knowledge about teaching than do their cooperating teachers, while female trainees perceive much less growth in their own professionalism than do their supervisors from the public schools.

F. Male student teachers are much more overt in classroom behavior than are females, i.e., they recognize and reward acceptable pupil behavior more readily than women and they also condemn unacceptable pupil behavior more openly and frequently than do women.

G. Potential social studies teachers who participate in the Individualized Secondary Teacher Education Program perform better in a practicum (whether in a team or solo arrangement) than do trainees whose preparatory activities consist of the traditional education courses.

VI. RECOMMENDATIONS

A. Implementing the findings

Important to any research study is the application of the findings to facilitate change or modify existing practices. It would appear that the findings of this study have several possible implications which can be easily implemented. The following areas are recommended as possible means for such implementations:

1. It is recommended that teacher education institutions initiate teaming of cadets for the major practicum of the training program. Such a move would require fewer cooperating teachers, thus allowing institutions to be more selective in placing trainees with appropriate instructor models. It would also provide more cadets with a team experience who could then become available for schools organized on a team teaching basis.
2. It is recommended that a screening process be devised which would aid in the identification of public school teachers who possess the characteristics of a model to which prospective teachers ought to be exposed. Such teachers could be trained to work effectively with teams of trainees and a continuous in-service program of improvement could be initiated which would benefit the classroom teacher, the pre-service trainee, and more importantly, the public school pupil.

3. School districts interested in taking advantage of the "team" training of these prospective teachers should be provided with a roster which would indicate the subject matter skill and an evaluation of the performance of each individual so trained.
4. Colleges and Universities offering a "team" student teaching experience should conduct careful and continuous follow-up studies of the graduates. Data obtained from such studies should be utilized in modifying existing programs and should provide a continuing index of the success of such training.

B. Future research

A common product of research is that questions not included in the study often arise and lead to areas for future investigation. The following recommendations are suggested as a further means to comprehending the problems surrounding more suitable teacher preparation programs, particularly as they relate to improved student teaching assignments.

1. Team student teaching needs to be investigated on the secondary level with all academic subject matter areas. It may be that certain disciplines will be more conducive to successful team learning in practice teaching than others.

2. Studies should be undertaken to determine the maximally efficient and effective team size for optimum growth during student teaching in the various academic subject matter specialties. Specific combinations for teaming may be more appropriate for one discipline than another.
3. A longevity study, spanning several years, with larger numbers of trainees from different institutions should be conducted to determine whether the findings reported in this study are consistent and generalizable to a broader population.
4. Those participants involved in the experiment conducted for this report should be followed into the profession where periodic evaluations could be made to determine if observed differences are permanent and are actually reflected in "on-the-job" teaching.
5. A study of personality traits of potential teachers and of successful cooperating teachers (working with teams) is recommended for future research. Such a study should be aimed at identifying the combinations of characteristics which would minimize possible conflict in a team setting and which would maximize growth in the learning environment of the practicum.
6. To provide additional comparative data on the respective merits of team student teaching and solo experiences,

it is recommended that selected cooperating teachers be assigned trainees of each type on an alternating basis, over a five-year period of time. Such data would likely prove to be more valid in drawing conclusions about teaching effectiveness of trainees in the two programs than having the ratings coming from separate and unrelated sources.

7. A more extensive study comparing the performance of I-STEP trainees and those from the traditional program needs to be undertaken. This should consider all academic areas and should reflect additional strengths and weaknesses of each program. A more suitable preparatory sequence could then be identified and developed into an improved program for future teacher candidates.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

Axtelle, George and William Wattenberg (eds.). Teachers for Democracy. New York: D. Appleton-Century Company, Inc., 1940.

Cubberley, Elwood. Readings in History of Education. New York: Houghton Mifflin Co., 1920.

Getzels, J. W. and P. W. Jackson. Handbook of Research on Teaching. Chicago: Rand McNally, 1963.

Gorman, Alfred H. Teachers and Learners--The Interactive Process of Education. Boston: Allyn & Bacon, 1969.

Luckey, George W. The Professional Training of Secondary Teachers. New York: Macmillian Company, 1903.

Monroe, Walter. Teaching Learning Theory and Teacher Education, 1890-1950. Urbana: University of Illinois Press, 1957.

Stiles, Lindley, et. al., Teacher Education in the United States. New York: The Ronald Press Co., 1960.

B. PUBLICATIONS OF THE GOVERNMENT, LEARNED SOCIETIES, AND OTHER ORGANIZATIONS

Evenden, Edward S. National Survey of The Education of Teachers. Washington: United States Government Printing Office, Vol. 6, Bulletin No. 10, 1933.

Fuller, F. F., et. al. "Intensive Individualization of Teacher Preparation," The Association for Student Teaching 46th Yearbook, 1967.

Individualized Secondary Teacher Education Program at Brigham Young University, M-STEP Monograph Number 2. Salt Lake City: Utah State Board of Education.

Mitzel, H. E. and Cecily Gross. "A Critical Review of the Development of Pupil Growth Criteria in Studies of Teacher Effectiveness," Research Series 31. New York: Division of Teacher Education, Board of Higher Education of the City of New York, 1956.

"The Outlook in Student Teaching," The Association for Student Teaching 41st Yearbook, 1962.

C. PERIODICALS

Ames, Robert G. "What is Teaching?", Clearing House, 38:107, October, 1963.

Bjerstedt, Ake. "Interaction Oriented Approaches to the Assessment of Student Teachers," Journal of Teacher Education, 18:339-57, Fall, 1967.

Boyan, Norman J. "The Intern Team as a Vehicle for Teacher Education," Journal of Teacher Education, 16:18, March, 1965.

Cohen, Arthur M. "Teacher Preparation: Rationale and Practice," Junior College Journal, 37:21-25, 1967.

Chabassol, D. J. "Possession of Certain Attitudes as Predictors of Success in Practice Teaching," Journal of Educational Research, 61:304-6, March, 1968.

Dean, Stuart E. "Team Teaching--A Review," School Life, 1961, p. 44.

Downie, N. M. and C. R. Bell. "The Minnesota Teacher Attitude Inventory as an Aid in the Selection of Teachers," Journal of Educational Research, 46:699-704, May, 1953.

Fraenkel, Jack R. "A Comparison of Achievement Between Students Taught by a Teaching Team and Students Taught in Traditional Classes on a Standardized Examination in United States History," Journal of Educational Research, 61:43, September 1967.

Goodlad, John I. "An Analysis of Professional Laboratory Experience, in the Education of Teachers," Journal of Teacher Education, 16:263, September, 1965.

Gustafson, Kent L. "Portable VTR's for Student Teachers," Audio Visual Instruction, 12:1070-1, December, 1967.

Haberman, Martin. "The Teaching Behavior of Successful Interns," Journal of Teacher Education, 16:20, June, 1965.

Jordan, Archie C. "Improving Student Teacher Evaluation," Peabody Journal of Education, 45:139-42, November, 1967.

Kirk, J. and E. Amidon. "When Student Teachers Study Interaction," Elementary School Journal, 68:97-104, November, 1967.

Korb, M. V. "Positive and Negative Factors in Team Teaching," Mathematics Teacher, 61:50-3, January, 1968.

Kracht, Conrad R. and John P. Casey. "Attitudes, Anxieties, and Student Teaching Performance," Peabody Journal of Education, 45:214-17, January, 1968.

Maurer, D. C. "Pair Learning Techniques in High School," Phi Delta Kappan, 49:609-10, June, 1968.

McCurdy, Donald. "Tomorrows' Teacher: New Role?", Peabody Journal of Education, 45:348-50, May, 1968.

Meyer, J. A. "Group Grope: Problem of Team Teaching," Clearing House, 42:362-4, February 1968.

Neal, C. D., et. al. "Student Teaching: Partnership or Confusion," American School Board Journal, 154:41, June 1967.

Olson, Carl O. "Why Teaching Teams Fail," Peabody Journal of Education, 45:15-20, July, 1967.

Parachini, M. R. E. "Experiment in Team Learning," Catholic School Journal, 68:49-50, January, 1968.

Rugg, Earle U. "Who Shall be Educated for Teaching?", Journal of Teacher Education, 16:225, June, 1965.

Soares, A. T. "Self-Perception of Student Teachers and the Measurement of Their Experience," Journal of Teacher Education, 19:187-91, Summer, 1968.

Sorensen, Garth. "What is Learned in Practice Teaching?", Journal of Teacher Education, 18:173, Summer, 1967.

Smith, E. B., et. al. "Toward Real Teaching: A Team Internship Proposal," Journal of Teacher Education, 19:7-16, Spring, 1968.

Sybouts, W. "Supervision and Team Teaching," Educational Leadership, 25:158-9, November, 1967.

Triplett, D. "Student Teachers Rank Their Needs," Michigan Education Journal, 45:13-14, November, 1967.

Wagner, Hilmar, "Peer Teaching," Texas Outlook, 52:20-1, August, 1968.

D. UNPUBLISHED ARTICLES AND NEWSPAPERS

Andrews, L. O. "Student Teaching Today is Educationally, Psychologically, and Financially Unsound." Ohio State University, January, 1968, (mimeographed paper).

Mitchell, Maurice. "The Knowledge Explosion. . .A Universal Problem," The New York Times, Section 2, May 26, 1963.

APPENDIXES

APPENDIX A

VIDEO-TAPE EVALUATION FORM

VIDEO TEACHING EVALUATION FORM

Teaching Episode Number ___________ Evaluator____________________

Circle the appropriate number*
Low High

Conceptual Behavior Components:

1. Preassessment . . . . 1 - 2 - 3 - 4 - 5
2. Exemplars appropriate to the concept . . . . 1 - 2 - 3 - 4 - 5
3. Higher than lowest cognitive behavior required . . . . 1 - 2 - 3 - 4 - 5
4. Students involved in the learning activities . . . . 1 - 2 - 3 - 4 - 5
5. Acceptable behavior reinforced . . . . 1 - 2 - 3 - 4 - 5
6. Composure maintained before the class . . . 1 - 2 - 3 - 4 - 5

Post Assessment:

7. Opportunity for students to apply concept . 1 - 2 - 3 - 4 - 5
8. Memorization is primary student response . . 1 - 2 - 3 - 4 - 5
9. Concept classification required for evaluation . . . . 1 - 2 - 3 - 4 - 5
10. Problem solving is the terminal behavior sought . . . . 1 - 2 - 3 - 4 - 5

Total __________

---

*Description of Ratings:

Evaluation suggests this student teacher had a(n):

5 = Superior use of this component

4 = Excellent approach to this component

3 = Good attempt to involve this component

2 = Fair utilization of this component

1 = Poor or non-use of this component

GUIDELINES FOR EVALUATORS OF CLASSROOM TEACHING EPISODES

Look for:

1. Preassessment:
   Was there evidence that the student teacher determined the students' readiness for and/or previous experience with the concept(s) of the particular lesson?

2. Exemplars:
   Were they clear, unambiguous exposures to the idea(s), or were they confusing and clouded with extraneous material which caused students to miss the main point somewhat?

3. Higher than Lowest Cognitive Level:
   Were students caused to respond frequently with other than memorized material or the repetition of what had been covered earlier in the lesson?

4. Student Involvement:
   Were students expected and invited to participate throughout the lesson in other than a "listener" role?

5. Reinforcement of Pupil Behavior:
   Were acceptable responses acknowledged in such a way as to communicate to the student that his contribution was appreciated? Did this subsequently cause students to respond more voluntarily, or were student responses largely ignored and thus discussion stiffled?

6. Classroom Poise and Composure:
   Was student teacher able to handle unexpected situations without losing his "cool" and still move the group toward the lesson objective?

7. Concept Application:
   Was provision made, as part of the lesson, for students to meaningfully include the new idea(s) presented in some specific manner, or was it simply "hoped" that proper transfer would occur later on?

8. Memorization:
   Students responses were almost entirely of a "recall nature.

9. Concept Classification:
   Students were required to identify a previously unencountered object or event as being or not being an instance of the concept taught in the lesson. (differentiation, generalization, abstraction, etc.)

10. Problem Solving:
    Students were expected to apply the principles and ideas of the lesson in a new situation in which they would produce a response requiring serious thought and analysis with proper use of previously learned concepts.

APPENDIX B

VERBAL INTERACTION CATEGORY SYSTEM

VERBAL INTERACTION CATEGORY SYSTEM

Teacher-Initiated Talk

1. Give Information or Opinion. This category is used when the teacher is presenting facts or opinions to the class, either in the form of short statements or in the form of extended lecture. Generally, when the teacher is presenting content, this category is used. Explanation and orientation would fall in this category. During the interchange of discussion a teacher often gives information or opinion. Rhetorical questions such as, "We wouldn't expect that the government would have ceded power willingly, would we?" are included here.

2. Gives Direction. When the teacher tells the students to take some specific actions, this category is used. Examples of category 2 are: "Open your books to page 5," "Take your seats now," and "Add the following numbers as quickly as possible." Directions may be given in question form, as for example, "Will everyone turn around now?" or "Can you come here for a moment, Jane?"

3. Asks Narrow Question. If the specific nature of the response can be predicted, then this category is used. Drill questions and questions requiring one word or yes-or-no answers fall into this category. "How much is 3 and 3?" "What is the capital of France?" "Is that correct?" "What happened next in the story?" "What are the principal exports of Brazil?" and "Did you like that plan?" are examples of narrow questions.

4. Asks Broad Question. Questions that fall into this category would be relatively open-ended; the kind that call for unpredictable responses. When the teacher asks questions that are thought-provoking, that require reasoning or extended expression of opinion or feeling, this category is used. The broad question is apt to elicit longer responses than the narrow question. Examples of broad questions are: "Can you tell me some things you know about the number '3'?" "What are some reasons that Paris came to be the capital of France?" "What are some other things the author might have written next in this story?" "What are some ways in which the history and geography of Brazil might influence its production and exports?" "What do you think about that plan?" and "How do you feel about what she said?"

Teacher Response

5a. Accepts Ideas. When the teacher reflects, clarifies, encourages or praises an idea of a pupil, then this category is used. If the teacher summarizes the ideas of a pupil or of several pupils, comments upon the ideas without rejecting them or simply reflects them by restatement, this category is indicated. Saying "Yes," "Good," "That's an interesting idea," and "So you think the governor acted wisely," are examples of category 5a.

5b. Accepts Behavior. Responses to pupil behavior which encourage or praise that behavior fall into this category. Such statements as, "The boys and girls in this group are cooperating well," "Billy knows how to use books properly," "You told that story with marvelous expression," "That's a colorful picture," "You can be proud of the way you behaved on our trip," and "Good work," are examples of acceptance of behavior.

5c. Accepts Feeling. When the teacher responds to pupil feeling in an accepting manner or merely reflects their feelings, this category is used. "I know that it's a warm day and many of us would rather be outside," "Of course you feel disappointed because there isn't any assembly program today," "I'd be happy too, if that happened to me," "No wonder you're crying," and "You're very angry," are examples of category 5c.

6a. Rejects Ideas. This category is used when the teacher criticizes, ignores or discourages pupil ideas. "Can someone else tell us the right answer?" "That's not right," "Where did you ever get that idea!" "Is that what I asked you to discuss?" and "New York is not one of the New England States" are examples of rejection. Notice that some of these examples were stated in question form, but would be taken by the pupils as criticism, and are clearly rejection of ideas.

6b. Rejects Behavior. Teacher comments that are designed to discourage or criticize pupil behavior fall into this category. "I said to sit down!" "We shouldn't have our books open now," "Where do you think you are?" "Stop that at once," and "Never give me a paper like that again," are all expressions of rejection of behavior. Some of these examples may appear to fall into the category of questions or directions. The tone of voice, the resultant effect upon pupils, and the fact that they are designed to stop behaviors which the teacher considers to be undesirable are what cause them to be categorized as teacher comments which reject pupil behavior.

6c. Rejects Feeling. When teachers respond to expressions of pupil feeling by discouraging or criticizing them, then the category of rejecting feeling is being used. "Aren't you ashamed of yourself for crying?" "Just because there's no assembly today is no reason to mope," "There's no need to bring our personal feelings up," and "There's absolutely no reason for you to be worried," are examples of this category.

Pupil Response

7a. Responds to Teacher Predictably. This response would ordinarily follow category 3, a narrow or predictable response from the teacher, and would tend to be a relatively short reply. Category 7a may also follow category 2, Gives Direction, as when the teacher says, "David, read the sentence at the top of the page." A response that is incorrect may still be considered to be in this category.

7b. Responds to Teacher Unpredictably. This category would usually follow the asking of a broad or unpredictable response question by the teacher. However, it is possible for a pupil to give an unpredictable response to a question which is categorized as narrow. For instance, when a teacher asks, "What was the cause of this conflict?" a pupil might reply, "It seems to me that there wasn't any one cause. I think there were many factors at work." This kind of response, however, is rarely found in the classroom. It would be more likely that an unpredictable response to a narrow question would be an irrelevant response, as when the teacher asks "How many of you had milk for breakfast this morning?" and a pupil response, "Last night we had ice cream for dessert."

8. Responds to Another Pupil. Whenever one pupil responds to the question or statement of another pupil, this category is being used. When there is conversation between pupils, the replies are examples of category 8.

Pupil-Initiated Talk

9. Talks to Teacher. If a pupil initiates a conversation with the teacher, then category 9 is used. "Will we have art today?" I don't understand how to do this problem," "Here's a clipping I brought in for our social studies project," "Would you repeat that last part again?" are all examples of category 9.

10. Talks to Another Pupil. Any conversation which one pupil initiates with another pupil falls into this category.

Other

11. Silence. Category 11 occurs whenever there are pauses or periods of silence during a time of classroom talk. Long periods of silence, for instance, when the class is engaged in seat work or silent reading, are of a different nature because these silences are not really a part of verbal interaction.

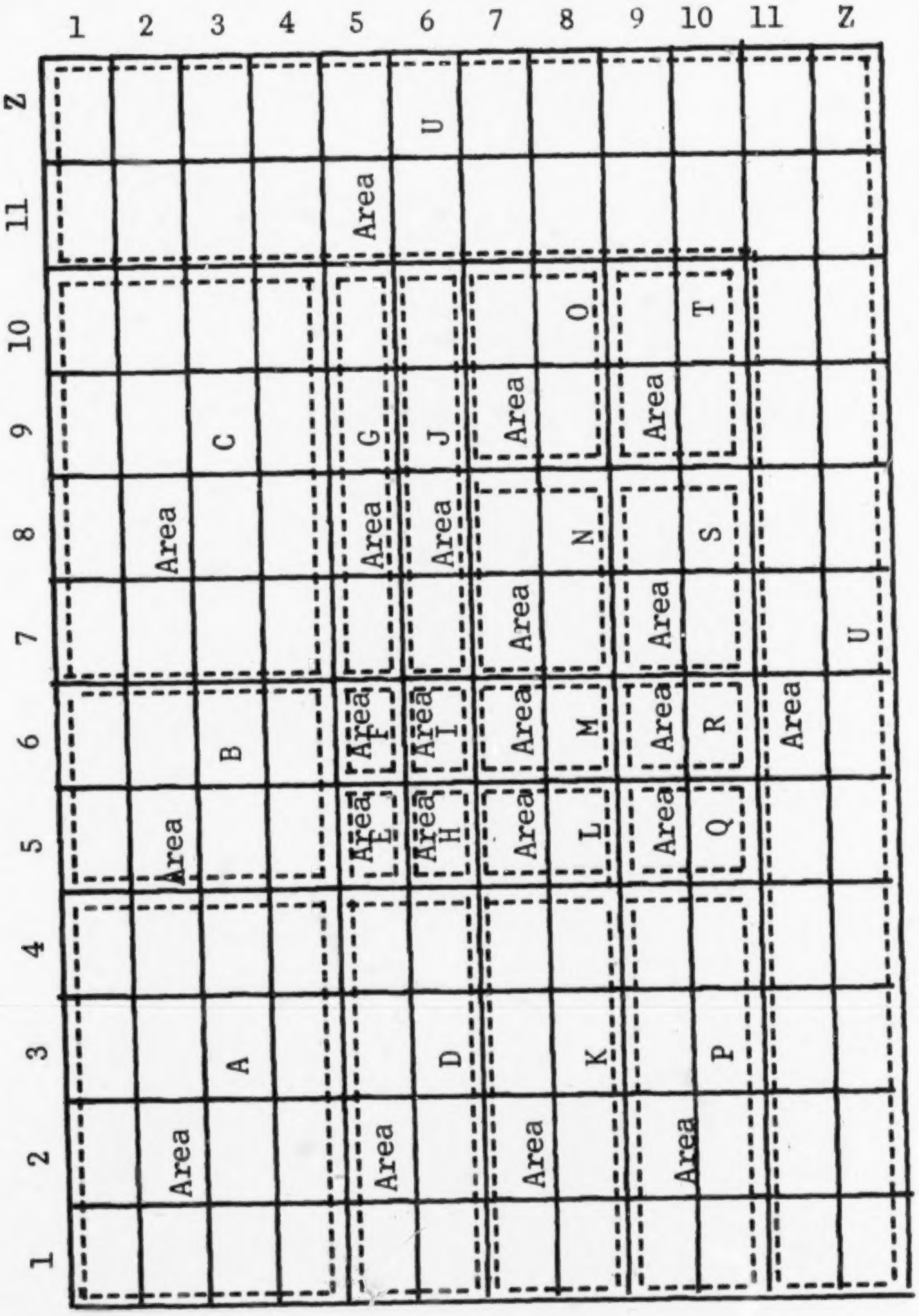
Z. Confusion. When there is considerable noise which disrupts planned activities, this category is used.

AREAS WITHIN THE MATRIX OF THE VICS
(Phase II)

Area A	This is the area of prolonged teacher initiation, and includes presenting information or opinion, giving directions and asking questions. The major characteristic of this area is that the teacher is speaking for a relatively long period. This is not an area which shows interaction between pupil and teacher.
Area B	The cells in this area indicate teacher initiated statements followed by teacher response statements, either accepting or rejecting.
Area C	This group of cells includes all pupil talk which follows teacher initiated talk.
Area D	Area D indicates teacher response statements followed by teacher initiated statements.
Area E	This area indicates prolonged accepting behavior on the part of the teacher. This includes extended acceptance of ideas, behavior, and feelings, as well as transitions from one of these verbal patterns to another.
Area F	These cells indicate teacher accepting behavior followed by teacher rejecting behavior.
Area G	This area shows accepting teacher statements followed by any student statements.
Area H	Area H indicates teacher rejecting behavior followed by teacher accepting behavior.
Area I	These cells indicate extended rejecting behavior on the part of the teacher. Rejection of ideas, behavior and feelings are indicated here, as well as transition from one of these behaviors to another.
Area J	These cells show all pupil statements which follow teacher rejecting statement.
Area K	This area indicates pupil response behavior followed by teacher initiated behavior.
Area L	This group of cells show student response followed by teacher acceptance.

Area M	Area M shows teacher rejection of pupil responses.
Area N	These cells show extended student response to either the teacher or another pupil.
Area O	Area O indicates pupil response statements followed by pupil initiated statements.
Area P	These cells indicate pupil initiated behavior followed by teacher initiated behavior.
Area Q	This area shows pupil initiated talk followed by teacher acceptance.
Area R	Area R indicates teacher rejection of pupil initiated talk.
Area S	These cells indicate pupil initiated statements followed by student response statements.
Area T	This area indicates extended pupil initiated talk to either the teacher or another pupil.
Area U	Area U indicates silence or confusion. If the tallies are in row or column 11 they indicate silence, and if they are in row or column Z, they indicate confusion. Tallies in column 11 or Z represent silence or confusion following teacher or pupil talk, while tallies in rows 11 or Z represent silence or confusion after pupil or teacher talk.

VICS SUMMARY SHEET


1 2 3 4 5 6 7 8 9 10 11 Z
Area A
Area B
Area C
Area D
Area E
Area F
Area G
Area H
Area I
Area J
Area K
Area L
Area M
Area N
Area O
Area P
Area Q
Area R
Area S
Area T
Area U

APPENDIX C

QUESTIONNAIRES ON TEACHING KNOWLEDGE, SKILLS, AND ATTITUDES

--KNOWLEDGE--

STUDENT TEACHER QUESTIONNAIRE

Student Teacher Name	Cooperating Teacher Name	School

As a result of your experience in the practice teaching program, to what degree, in your opinion, has your knowledge increased in the area of:

Circle the appropriate letter(s)*

1.	the problems of communicating with secondary pupils on their level?	P--F--G--VG--O
2.	the need for a sense of humor in the classroom. . . .	P--F--G--VG--O
3.	the readiness levels of various age and grade groups in the secondary school?	P--F--G--VG--O
4.	the content of the secondary curriculum?.	P--F--G--VG--O
5.	the problems of discipline associated with secondary pupils?	P--F--G--VG--O
6.	the play habits of secondary pupils?	P--F--G--VG--O
7.	the study capabilities of secondary pupils?	P--F--G--VG--O
8.	your role as a teacher?	P--F--G--VG--O
9.	your role as a co-worker in the school?	P--F--G--VG--O
10.	your position with respect to the principal?.	P--F--G--VG--O
11.	your role as a supervisor of students?	P--F--G--VG--O
12.	your role as a teacher with respect to public relations?	P--F--G--VG--O
13.	the preparation required for effective instruction? ·	P--F--G--VG--O
14.	the manner in which students acquire concepts? . . .	P--F--G--VG--O
15.	the use of media in providing variety in instruction?	P--F--G--VG--O

16. the role of individual differences in the classroom? . . . . P--F--G--VG--O

17. the manner of reporting pupil progress to students and parents? . . . . P--F--G--VG--O

18. the way the district administrative structure affects classroom teaching? . . . . P--F--G--VG--O

19. how to keep daily attendance records? . . . . P--F--G--VG--O

20. how to administer and use standardized tests? . . . . P--F--G--VG--O

21. how to involve more students in the daily learning activities? . . . . P--F--G--VG--O

22. how classroom teachers affect pupil value patterns? . P--F--G--VG--O

23. how to select and teach appropriate objectives? . . . P--F--G--VG--O

24. how to single out significant concepts from available materials? . . . . P--F--G--VG--O

25. how to encourage pupil participation by proper reinforcement of acceptable behavior? . . . . P--F--G--VG--O

---

[8] Description of Ratings: P-Poor; F-Fair; G-Good; VG-Very Good; O-Outstanding.

--SKILLS--

STUDENT TEACHER QUESTIONNAIRE

Student Teacher Name

Cooperating Teacher Name

School

As a result of your experience in the practice teaching program, to what degree, in your opinion, has your skill improved in your ability to:

	Circle the appropriate letter(s)*
1. get along well with your co-workers?	P--F--G--VG--O
2. carry out the objectives of the school?.	P--F--G--VG--O
3. handle unexpected situations in the classroom? . . .	P--F--G--VG--O
4. prepare unit and daily lesson plans?	P--F--G--VG--O
5. prepare and use audio-visual materials?.	P--F--G--VG--O
6. utilize available library resources?	P--F--G--VG--O
7. diagnose pupil difficulties?	P--F--G--VG--O
8. evaluate pupil programs?	P--F--G--VG--O
9. communicate with pupils?	P--F--G--VG--O
10. identify and transmit concepts?	P--F--G--VG--O
11. maintain good classroom control?	P--F--G--VG--O
12. accept constructive criticism?	P--F--G--VG--O
13. work as a member of an educational team?	P--F--G--VG--O
14. communicate with parents?	P--F--G--VG--O
15. keep daily attendance records?	P--F--G--VG--O
16. administer and use standardized tests?	P--F--G--VG--O
17. determine appropriate groupings based on common learning needs?.	P--F--G--VG--O

18. admit a mistake and take proper corrective measures? . . . . P--F--G--VG--O
19. plan, conduct, and evaluate a field trip? . . . . . P--F--G--VG--O
20. share ideas and materials with colleagues?. . . . . P--F--G--VG--O

---

*Description of Ratings: P-Poor; F-Fair; G-Good; VG-Very Good; O-Outstanding.

--ATTITUDES--

STUDENT TEACHER QUESTIONNAIRE

Student Teacher Name ________ Cooperating Teacher Name ________ School ________

As a result of your experience in the practice teaching program, to what degree, in your opinion, has your attitude changed toward (i.e., are you better able to understand and appreciate the role of) the following:

Circle the appropriate number*

1. becoming a professional teacher? . . . . -2 -1 0 +1 +2
2. the secondary age pupils? . . . . -2 -1 0 +1 +2
3. the role of the principal? . . . . -2 -1 0 +1 +2
4. your fellow teachers? . . . . -2 -1 0 +1 +2
5. the parents of your pupils? . . . . -2 -1 0 +1 +2
6. your responsibility in the learning activities of the classroom? . . . . -2 -1 0 +1 +2
7. solo teaching in a self contained classroom? . . . . -2 -1 0 +1 +2
8. becoming involved in new innovations in education? . -2 -1 0 +1 +2
9. your role as a team teaching member? . . . . -2 -1 0 +1 +2
10. the need for additional training (graduate study)? . -2 -1 0 +1 +2
11. your self confidence in being able to plan and execute a unit of instruction? . . . . -2 -1 0 +1 +2
12. your view of yourself as a responsible classroom teacher? . . . . -2 -1 0 +1 +2
13. the need for continuous evaluation of you as a teacher?-2 -1 0 +1 +2
14. the time required for good teaching and the compensation received for this investment? . . . . . . -2 -1 0 +1 +2
15. a teacher's role in extra-curricular activities? . . -2 -1 0 +1 +2

---

*Place yourself on this continuum:
+2 = improved greatly
+1 = improved moderately
0 = no change
-1 = deteriorated moderately
-2 = deteriorated greatly

--KNOWLEDGE--

COOPERATING TEACHER QUESTIONNAIRE

Cooperating Teacher Name Student Teacher Name School

As a result of the above named student teacher's experience in the practice teaching program, to what degree, in your opinion, has his/her knowledge increased in the area of:

Circle the appropriate
letter(s)*

1. the problem of communicating with secondary pupils on their level? . . . . P--F--G--VG--O
2. the need for a sense of humor in the classroom?. . . P--F--G--VG--O
3. the readiness levels of various age and grade groups in the secondary school? . . . . P--F--G--VG--O
4. the content of the secondary curriculum? . . . . . . P--F--G--VG--O
5. the problems of discipline associated with secondary pupils?. P--F--G--VG--O
6. the play habits of secondary pupils? . . . . P--F--G--VG--O
7. the study capabilities of secondary pupils?. . . . . P--F--G--VG--O
8. his/her role as a teacher? . . . . P--F--G--VG--O
9. his/her role as a co-worker in the school? . . . . . P--F--G--VG--O
10. his/her position with respect to the principal? . . . P--F--G--VG--O
11. his/her role as a supervisor of students? . . . . . P--F--G--VG--O
12. his/her role as a teacher with respect to public relations? . . . . P--F--G--VG--O
13. the preparation required for effective instruction?. P--F--G--VG--O
14. the manner in which students acquire concepts? . . . P--F--G--VG--O
15. the use of media in providing variety in instruction? P--F--G--VG--O

16. the role of individual differences in the classroom? . . . . P--F--G--VG--O

17. the manner of reporting pupil progress to students and parents? . . . . P--F--G--VG--O

18. the way the district administrative structure affects classroom teaching?. . . . . P--F--G--VG--O

19. how to keep daily attendance records?. . . . . P--F--G--VG--O

20. how to administer and use standardized tests?. . . . P--F--G--VG--O

21. how to involve more students in the daily learning activities? . . . . P--F--G--VG--O

22. how classroom teachers affect pupil value patterns?. P--F--G--VG--O

23. how to select and teach appropriate objectives?. . . P--F--G--VG--O

24. how to single out significant concepts from available materials? . . . . P--F--G--VG--O

25. how to encourage pupil participation by proper reinforcement of acceptable behavior?. . . . . P--F--G--VG--O

---

*Description of Ratings: P-Poor; F-Fair; G-Good; VG-Very Good; O-Outstanding.

--SKILLS--

COOPERATING TEACHER QUESTIONNAIRE

____________________	____________________	____________
Cooperating Teacher Name	Student Teacher Name	School

As you have observed the above named student teacher's experience in the practice teaching program, to what degree, in your opinion, has his/her skill improved in his/her ability to:

Circle the appropriate letter(s)*

1. get along well with his/her co-workers? . . . . P--F--G--VG--O
2. carry out the objectives of the school? . . . . P--F--G--VG--O
3. handle unexpected situations in the classroom?. . . . P--F--G--VG--O
4. prepare unit and daily lesson plans? . . . . P--F--G--VG--O
5. prepare and use audio-visual materials? . . . . P--F--G--VG--O
6. utilize available library resources?. . . . . P--F--G--VG--O
7. diagnose pupil difficulties?. . . . . P--F--G--VG--O
8. evaluate pupil progress?. . . . . P--F--G--VG--O
9. communicate with pupils?. . . . . P--F--G--VG--O
10. identify and transmit concepts? . . . . P--F--G--VG--O
11. maintain good classroom control?. . . . . P--F--G--VG--O
12. accept constructive criticism?. . . . . P--F--G--VG--O
13. work as a member of an educational team? . . . . . . P--F--G--VG--O
14. communicate with parents? . . . . P--F--G--VG--O
15. keep daily attendance records?. . . . . P--F--G--VG--O
16. administer and use standardized tests?. . . . . P--F--G--VG--O

17. determine appropriate groupings based on common learning needs? P--F--G--VG--0

18. admit a mistake and take proper corrective measures?. P--F--G--VG--0

19. plan, conduct, and evaluate a field trip? P--F--G--VG--0

20. share ideas and materials with colleagues?. P--F--G--VG--0

---

*Description of Ratings: P-Poor; F-Fair; G-Good; VG-Very Good; O-Outstanding.

--ATTITUDES--

COOPERATING TEACHER QUESTIONNAIRE

________________________ ____________________ ____________________
Cooperating Teacher Name Student Teacher Name School

As a result of the above named student teacher's experience in the practice teaching program, to what degree, in your opinion, has his/her attitude changed toward (i.e., do you think he/she is better able to understand and appreciate the role of) the following:

Circle the appropriate number*

1. becoming a professional teacher? . . . . -2 -1 0 +1 +2
2. the secondary age pupils? . . . . -2 -1 0 +1 +2
3. the role of the principal?. . . . . -2 -1 0 +1 +2
4. his/her fellow teachers? . . . . -2 -1 0 +1 +2
5. the parents of his/her pupils?. . . . . -2 -1 0 +1 +2
6. his/her responsibility in the learning activities of the classroom? . . . . -2 -1 0 +1 +2
7. solo teaching in a self contained classroom?. . . . . -2 -1 0 +1 +2
8. becoming involved in new innovations in education?. . -2 -1 0 +1 +2
9. his/her role as a team teaching member? . . . . -2 -1 0 +1 +2
10. the need for additional training (graduate study)?. . -2 -1 0 +1 +2
11. his/her self confidence in being able to plan and execute a unit of instruction? . . . . -2 -1 0 +1 +2
12. his/her view of himself/herself as a responsible classroom teacher? . . . . -2 -1 0 +1 +2
13. the need for continuous evaluation of him/her as a teacher? . . . . -2 -1 0 +1 +2
14. the time required for good teaching and the compensation received for this investment? . . . . -2 -1 0 +1 +2
15. a teacher's role in extra-curricular activities?. . . -2 -1 0 +1 +2

---

*Place yourself on this continuum:
+2 = improved greatly
+1 = improved moderately
0 = no change
-1 = deteriorated moderately
-2 = deteriorated greatly

VITA

Name	Wallace Earl Allred
Birthplace	Spring City, Utah
Birthdate	26 April, 1932
Elementary School	Spring City, Utah
Secondary School	North Sanpete High School, Mt. Pleasant, Utah
College	Snow Jr. College, Ephraim, Utah, 1950-52
University	Brigham Young University, Provo, Utah, 1954-57 Oregon State University, Corvallis Oregon, 1963-64 University of Utah, Salt Lake City, Utah, 1969-70
Degrees	A.S. - Snow Jr. College, 1952 B.S. - Brigham Young University, 1956 M.Ed. - Brigham Young University, 1957 M.S. - Oregon State University, 1964
Certificates	Secondary Education - State of Utah General Administrator - State of Utah
Experience	Mathematics teacher, Brigham Young University High School, 1954-1961 Curriculum Writer, 1961-62 National Science Fellowship, 1963-64 Administrator, BYU Laboratory School, 1964-68 Instructor Teacher Education BYU, 1968-70 Chairman Secondary Education Dept. BYU, 1970-
Publications	"Toward More Involvement," Instructor, 1970 CPE--I-STEP Guide, BYU, 1970-
Consultant	Individualized Secondary Education Consultant to school districts in Utah, California, Texas, Kansas, Colorado, and Canada.
Family	Wife: Bonnie Lou (Norman), married June, 1953 Children: Kenneth, Janet, Nancy, Marilyn